AIR COMPRESSORS

SINGLE AND TWO STAGE

¼ thru 20 H.P.

BRUNNER
SINCE 1906

CATALOG 36

BRUNNER MANUFACTURING COMPANY, UTICA, N.Y., U.S.A.

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Specifications and dimensions shown within this catalog are subject to change without notice.

Because the Brunner Engineering and Research Staff is continuously searching for new improvements in our product, it may differ, to some degree, from the illustrations and specifications contained in this catalog.

Certified prints are available upon request

Catalog 36

AIR COMPRESSORS

¼ thru 20 H.P.

BRUNNER MANUFACTURING COMPANY
Utica, N.Y., U.S.A.

The Brunner Company, Gainesville, Ga.
Brunner Corporation (Canada) Limited, Toronto, Canada

Printed in U.S.A.

Introduction

For fifty years, the name Brunner, has signified leadership in the compressed air industry. Wherever compressed air is used, in industry, automotive service shops, in agriculture, in thousands of applications around the world, Brunner equipment will be found doing an important job . . . and doing it efficiently.

Today, hundreds of new uses for compressed air are being found, making the air compressor of ever-growing importance. Where once, the automotive service industry was the chief user of compressed air, new industrial uses now far exceed automotive service applications.

Compressed air does work in virtually every industry . . . in agriculture to spray fruit trees and agitate milk; in bakeries to clean biscuit dies and unload molasses from tank cars; in printing, to dry ink and handle paper; in laundries, to operate presses and virtually every field where fast, efficient labor saving devices are required.

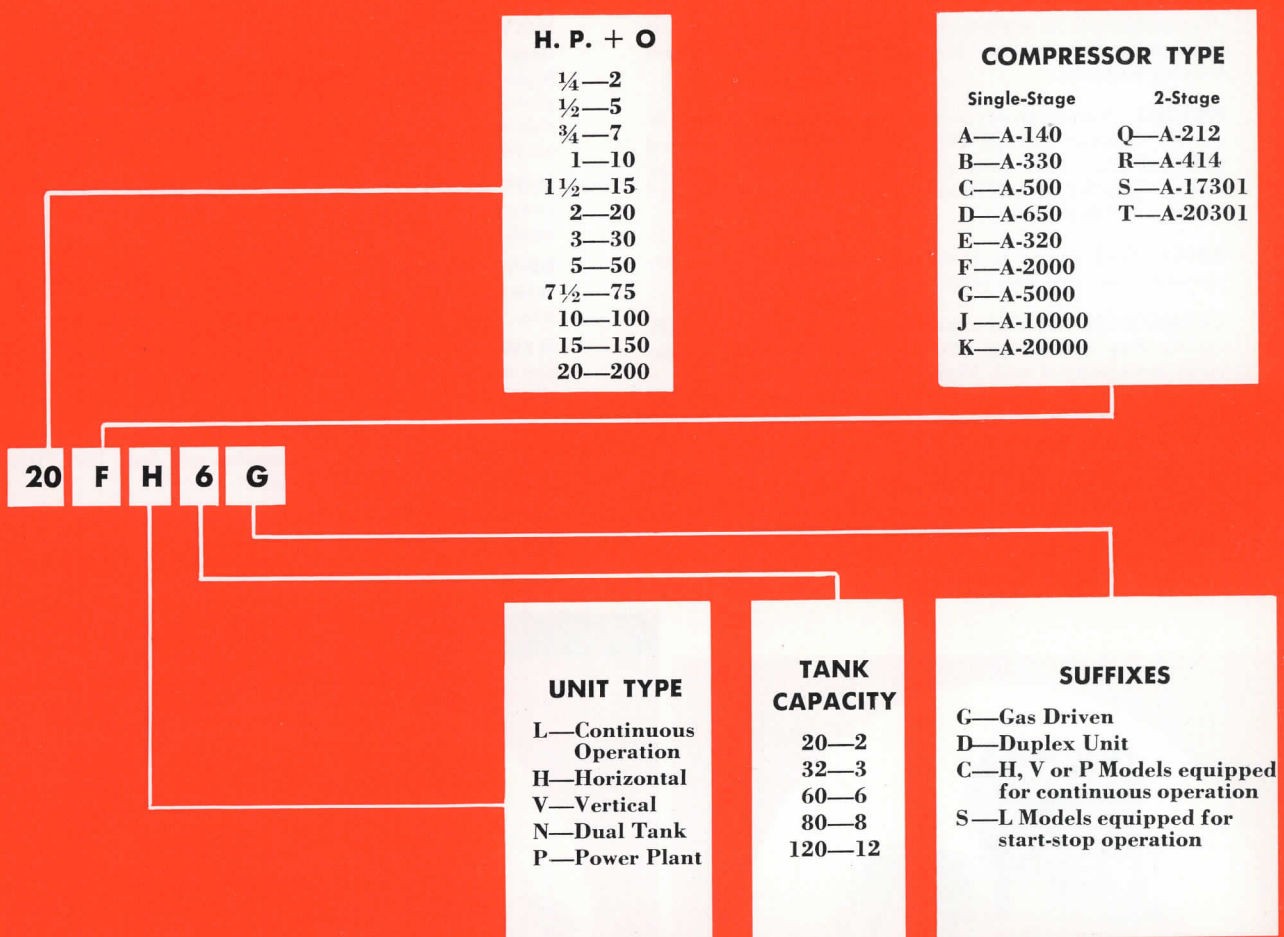
This book is designed not alone to present the complete Brunner line of air compressors, but rather is designed as a text book, a complete guide for those interested in air compressors. Within the following pages, will be found full engineering information on the use of compressed air; detailed data useful in choosing the right compressor for a specific job; and tables of computations that used properly, will help insure the correct installation for each job.

Brunner builds air compressor outfits in larger sizes than are illustrated and specified in this catalog. Outfits of 25, 30 and 50 horsepower are illustrated in Catalog 37, available upon request.

The model number of each Brunner outfit is coded so that one who knows the numbering code, can determine all important factors about the model at a glance.

For example, a model 20FH6 air compressor outfit, is a 2 H.P. "F" type compressor mounted on a horizontal, 60-gallon tank. Once the system is understood, it is simple to quickly know all the important facts about an outfit from its model number alone.

Here is how the system works:



BRUNNER
SINCE 1906

Single-Stage

SIMPLE COMPRESSORS

DESCRIPTION

GENERAL—Vertical, two and four-cylinder, single-acting, reciprocating type. Two-cylinder compressors are of the upright type and available for ¼ H.P. thru 2 H.P. Four-cylinder compressors are "V" type and available for 3 H.P. thru 20 H.P.

PRECISION-BUILT—Rotating parts are manufactured within .0002″ tolerances, providing long life, smooth operation and quiet performance. Cylinders are honed to a pattern to assure good oil control. Connecting rod bearings are diamond-bored in perfect alignment. Crankshafts are of high-grade alloy steel and have hardened precision-ground bearing journals.

PISTONS—Automotive-type cast iron, selected to provide perfect dynamic balance. Pistons are fitted with hardened polished alloy steel pins with brass buttons to prevent scoring cylinder walls. Piston pins rotate in diamond-bored bushings within pistons.

RINGS—Each piston is fitted with two tapered-face compression rings and one ventilated oil control ring.

CRANKCASES—Cast of close-grain iron nickel alloy, sufficiently deep to insure an adequate oil reservoir. All crankcases are equipped with internal crankcase breathers.

CYLINDERS—Cast of the same nickel alloy as the crankcase. Deeply finned to aid in the dissipation of heat.

CYLINDER HEADS—Also cast of close-grain iron nickel alloy. Equipped with extra large, scientifically designed fins which dissipate heat and reduce head temperature.

ECCENTRIC—Special alloy, cast-iron eccentric with cast iron eccentric straps on Model "A" and "B" compressors. Models "C", "D", "E", "F", "G" and "J" are fitted with bronze alloy eccentric straps, and Model "K" is equipped with a crankshaft with connecting rods.

BEARINGS—All models, except Models "A" and "B", have sleeve-type, heavy bronze alloy, precision-bored bearings for easy field replacement. Models "A" and "B" have cast-iron bearings.

VALVES—Suction and discharge valves are of the disc or flapper type and are lapped to a mirror finish, insuring high-efficiency operation. Valves are contained in a unit plate. In case of a repair or replacement a complete new valve plate can be quickly installed without breaking the air line.

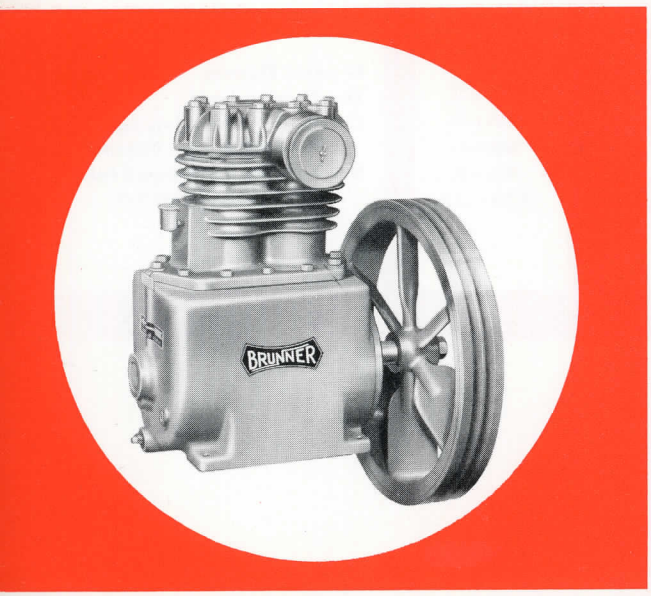
LUBRICATION—A splash-type lubrication system insures complete lubrication at all times. Bull's-eye oil sight gauge readily indicates oil level.

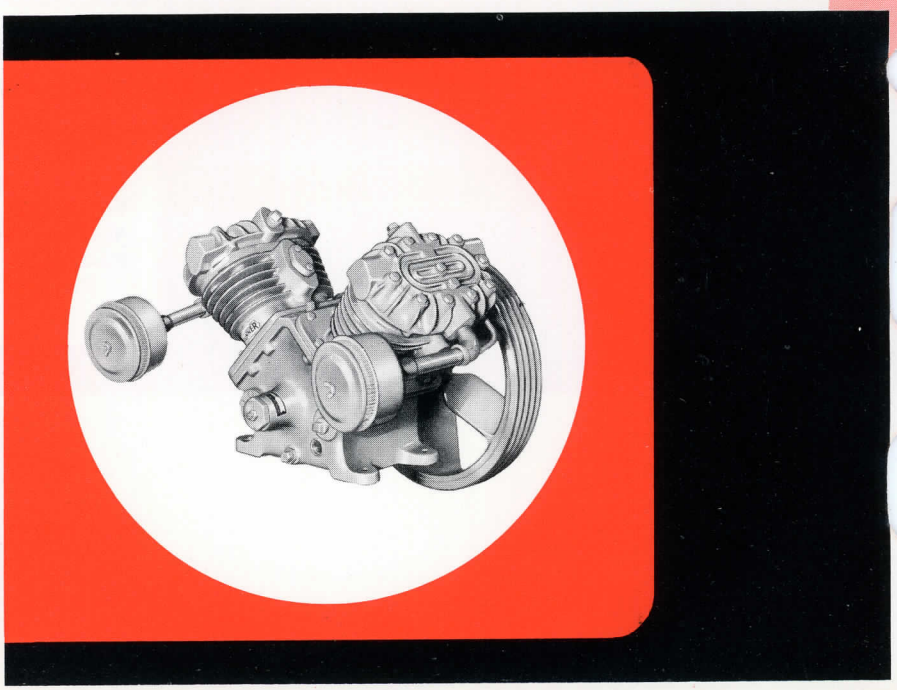
DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

MUFFLER-FILTER—Air intake muffler-filter of the impingement-type insures silent operation and long life. Filter is readily removable and cleanable.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





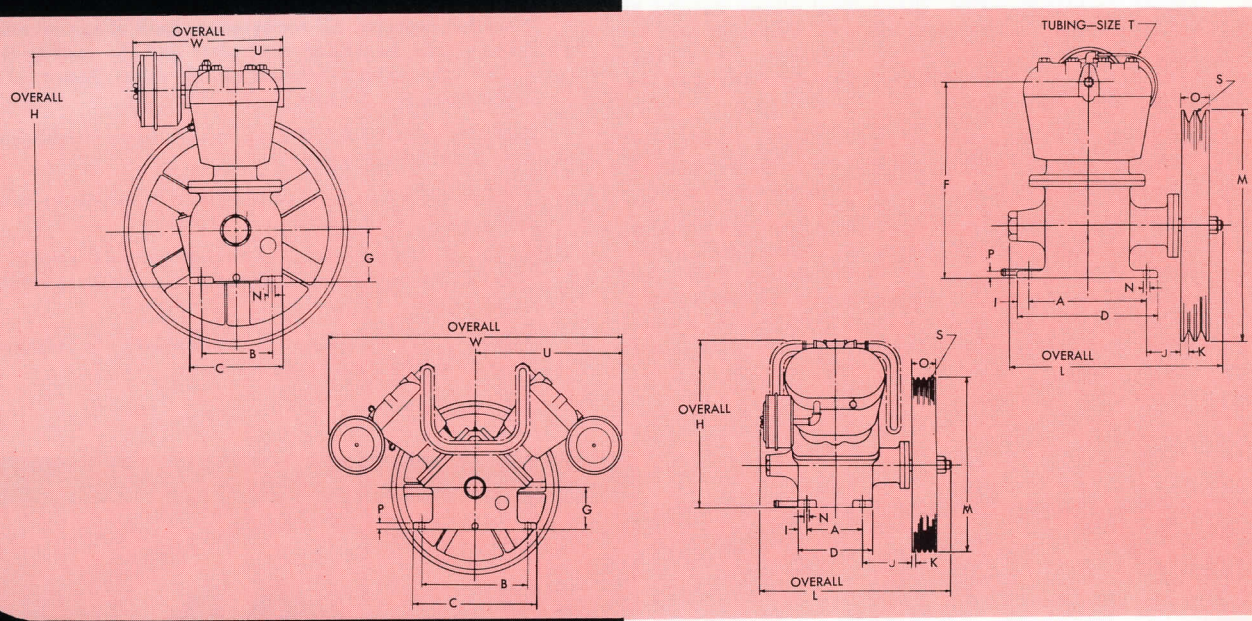
Representative Photos

Single-Stage

SIMPLE COMPRESSORS

SPECIFICATIONS

Model No.	No. Cyl.	Bore and Stroke	Motor Size H.P. Required	Max. Comp. R.P.M.	Max. Cut Off Press. Setting	Displ. Cu. In. Per Revolution	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Fly Wheel Pulley Size	Outlet Pipe Size	Fly Wheel Pulley Grooves	Ship. Weight Lbs.	Boxed for Export Cu. Ft.
A	2	1½x1⅜	¼	430	150	4.85	1.21	0.64	8″	⅜″	1	58	2
B	2	1 13/16x1⅜	½	720	150	7.1	2.96	1.70	8″	⅜″	1	65	2
C	2	2⅛x1⅝	¾	675	150	11.52	4.5	2.40	12″	½″	1	92	4
D	2	2½x1¾	1	580	150	17.18	5.76	3.51	12″	½″	2	135	5
E	2	2½x3	1½	435	150	29.4	7.4	4.50	14″	½″	2	151	5
F	2	3¼x2¼	2	545	150	37.2	11.7	6.90	16″	¾″	2	175	5
G	4	3¼x2¼	3	440	100	74.4	19.8	13.4	18″	¾″	3	387	14
G	4	3¼x2¼	5	670	100	74.4	30.1	19.1	18″	¾″	4	387	14
J	4	4¼x3	7½	515	100	170.2	50.8	34.9	26″	1″	5	775	27
J	4	4¼x3	10	655	100	170.2	64.5	41.7	26″	1″	5	775	27
K	4	4¼x5	15	555	100	283.7	91.0	63.4	26″	1¼″	5	1100	30



(Dwg. AP-160)

DIMENSIONS
(IN INCHES)

Comp. Model	A	B	C	D	F	G	H	I	J	K	L	M	N	O	P	S	T	U	V	W	X
A	6⅜	3 13/16	5 1/16	7⅝	9 15/16	2 11/16	11¼	⅝	1 9/16	⅞	12⅛	8	1/32	1⅜	⅜	1-A	*	1⅞	⅜	11	⅜
B	6⅜	3 13/16	5 1/16	7⅝	9 15/32	2 11/16	11¼	⅝	1 13/16	¾	12⅛	12	11/32	1½	⅜	1-A	*	1⅞	⅜	11	⅜
C	7⅜	4⅞	6⅜	8⅞	11¾	3⅜	14	¾	1⅞	¾	14⅝	12	13/32	1½	½	1-A	⅜	2¾	⅜	9¼	⅜
D	8⅝	5½	7¼	10⅜	13 1/32	3¾	16⅛	⅞	3⅞	7/16	18⅛	12	13/32	1½	½	2-A	⅜	3 1/16	½	11 7/16	¾
E	7⅞	6⅝	7½	8 13/16	5 11/16	4	18½	15/32	2 17/32	⅝	16⅝	14	13/32	1⅞	⅝	2-A	*	3 1/16	½	11½	¾
F	10	5 15/16	7 15/16	12	14 13/16	4 3/16	17⅞	1	4 1/32	⅝	20¾	14	½	1⅞	9/16	2-A	⅜	3 11/16	¾	12 5/16	¾
G	5 13/16	11⅛	13¼	7 15/16		4⅜	18¼	1 1/16	5½	¾	23⅜	18	½	2¾	¾	3-A	⅜	13 7/16	¾	26⅞	1
J	13⅝	9⅞	12⅜	16⅛		6⅜	25½	1¼	4⅞	½	27 3/16	26	11/16	4	¾	5-B	⅜	19⅛	1	38¼	1¼
K	13⅝	9⅞	12⅜	15½		6⅜	28¾	15/16	6⅜	½	24½	26	11/16	4	¾	5-B	⅜	18 13/16	1¼	37⅝	1¼

*The crankcase breather passage is within cylinder casting on these models.

Printed in U.S.A.
Form 690-1 6-55 (A)

BRUNNER
SINCE 1906

Single-Stage

Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—Outfit designed for a normal working pressure of 150 p.s.i. These outfits are available with ¼ H.P. thru 5 H.P. motors.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing on all compressors except "G" Type which are supplied with finned copped tubing to assure rapid dissipation of heat due to the high conductivity of the tubing and the large surface area.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release, or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Single-stage horizontal models also available with continuous-operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type overload protection built into ¼ H.P. thru 2 H.P. single-phase outfits insures against motor failure from such causes as continuous overload, jamming of motor drive, inability to start due to low voltage, and excessive temperature. Manual and magnetic starters are also available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL — Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

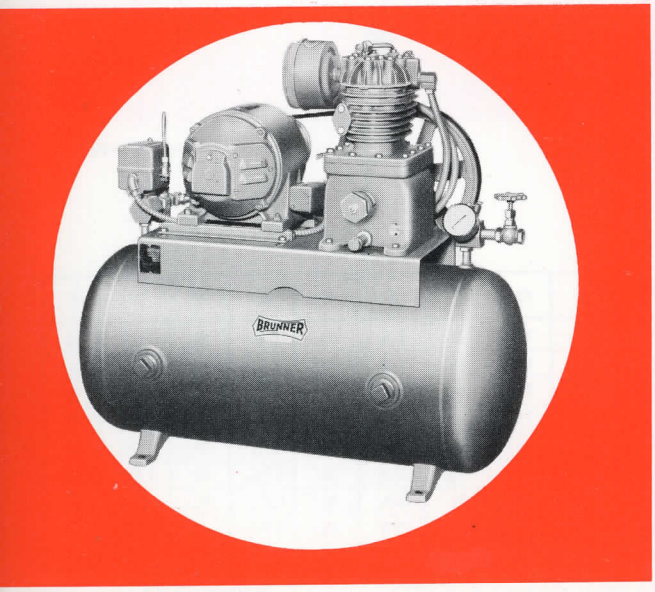
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers, ranging in size from 20-gallon thru 80-gallon capacity. All receivers are built of special analysis open-hearth, hot-rolled steel plate and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

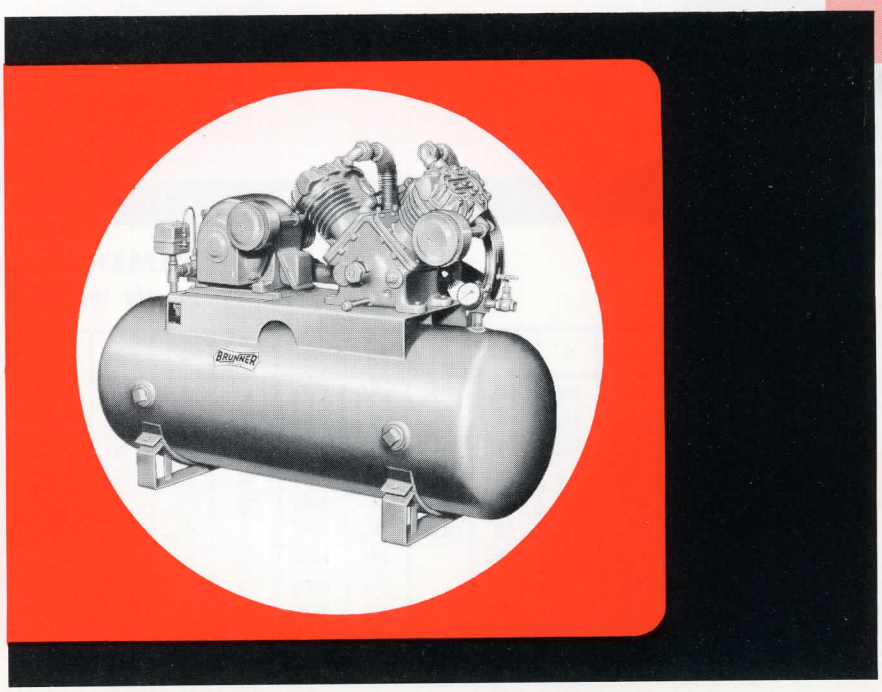
SAFETY VALVE—A.S.M.E.-approved. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

Single-Stage

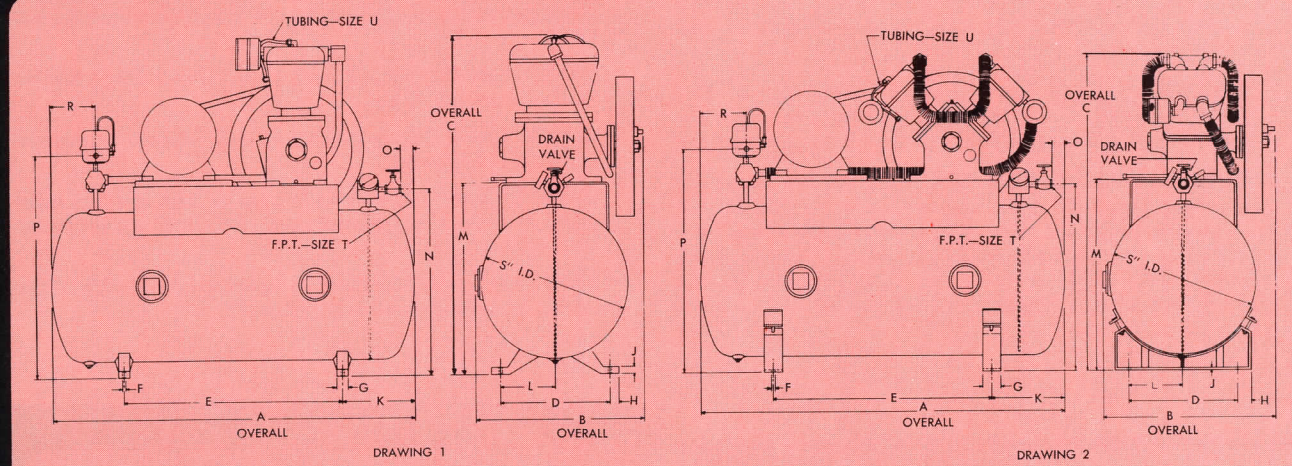
Horizontal Tank-Mounted

BRUNNER SINCE 1906

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
2AH2	A	1½x1⅜	2	430	150	1.21	0.64	¼	1	20	180 lbs.	14
3AH2	A	1½x1⅜	2	475	150	1.32	0.75	⅓	1	20	195 lbs.	14
5BH3	B	1 13/16x1⅜	2	720	150	2.96	1.70	½	1	32	242 lbs.	19
7CH3	C	2⅛x1⅝	2	675	150	4.5	2.40	¾	1	32	305 lbs.	20
10DH3	D	2½x1¾	2	580	150	5.76	3.51	1	2	32	370 lbs.	25
10DH6	D	2½x1¾	2	580	150	5.76	3.51	1	2	60	504 lbs.	39
15EH6	E	2½x3	2	435	150	7.4	4.50	1½	2	60	590 lbs.	39
15EH8	E	2½x3	2	435	150	7.4	4.50	1½	2	80	630 lbs.	52
20FH6	F	3¼x2¼	2	545	150	11.7	6.90	2	2	60	580 lbs.	38
20FH8	F	3¼x2¼	2	545	150	11.7	6.90	2	2	80	635 lbs.	52
30GH8	G	3¼x2¼	4	440	100	19.8	13.4	3	3	80	770 lbs.	52
50GH8	G	3¼x2¼	4	670	100	30.1	19.1	5	4	80	815 lbs.	52



(Dwg. AP-729)

DIMENSIONS
(IN INCHES)

Model No.	Model Comp.	Dwg. No.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U
2AH2	A	1	34¾	15¼	28¼	10¾	18	13/32	1¾	⅞	⅝	8¼	5⅜	17	18½	¼	21½	4¼	14	⅜	*
3AH2	A	1	34¾	15¼	28¼	10¾	18	13/32	1¾	⅞	⅝	8¼	5⅜	17	18½	¼	21½	4¼	14	⅜	*
5BH3	B	1	44	15¾	28⅞	10¾	24	13/32	1¾	⅞	⅝	10	5⅜	17⅝	18½	½	21	5	14½	⅜	*
7CH3	C	1	44	16⅝	31⅜	10¾	24	13/32	1¾	⅞	⅝	10	5⅜	17⅜	18⅜	½	21⅞	5	14½	½	⅜
10DH3	D	1	44	19⅛	33½	10¾	24	13/32	1¾	⅞	⅝	10	5⅜	17⅜	17⅞	½	20⅞	5	14½	½	⅜
10DH6	D	1	48	22½	40⅞	18	26	9/16	2	⅞	¾	11	9	24¾	25½	½	28	5	20	½	⅜
15EH6	E	1	48	21⅜	42⅞	18	26	9/16	2	⅞	¾	11	9	24⅜	25¾	½	28½	5	20	½	*
15EH8	E	1	60	21⅝	43	18	36	9/16	2	⅞	¾	12	9	24½	26⅜	3	28⅜	8	20	½	*
20FH6	F	1	48	23¼	42½	18	26	9/16	2	⅞	¾	11	9	24⅝	25¾	½	28½	5	20	½	⅜
20FH8	F	1	60	23½	42⅝	18	36	9/16	2	⅞	¾	12	9	24¾	26	4	28¾	8	20	½	⅜
30GH8	G	2	60	23¾	42	18	36	9/16	3	1¼	¼	12	9	23¾	24⅞	3½	27⅝	8	20	½	⅜
50GH8	G	2	60	23¾	42	18	36	9/16	3	1¼	¼	12	9	23¾	24⅞	3½	32¼	8	20	½	⅜

*Crankcase breather passage is within cylinder casting on these models.

Printed in U.S.A.
Form 690-2 6-55 (A)

BRUNNER
SINCE 1906

Single-Stage

Vertical Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—Outfit designed for use where a limited amount of space is available. These outfits are for use with pressures to 150 p.s.i. and are available with 1 H.P. thru 2 H.P. motors.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as a finned copper tubing on all units except Model 10DV6 which has straight copper tubing to assure rapid dissipation of heat due to the high conductivity of the tubing and the large surface area.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Single-stage vertical models also available with continuous operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type overload protection built into motor on 1 thru 2 H.P. single-phase outfits insures against motor failure from such causes as continuous overload, jamming of motor drive, inability to start due to low voltage, and excessive temperature. Manual and magnetic starters available as an extra on all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

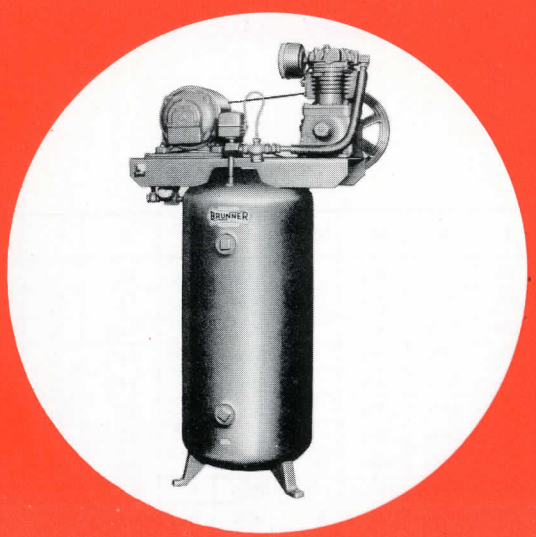
RECEIVER—A.S.M.E. (National Board) constructed vertical receivers, ranging in size from 60 thru 80 gallons capacity. All receivers are built of special analysis open-hearth, hot-rolled steel plate and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

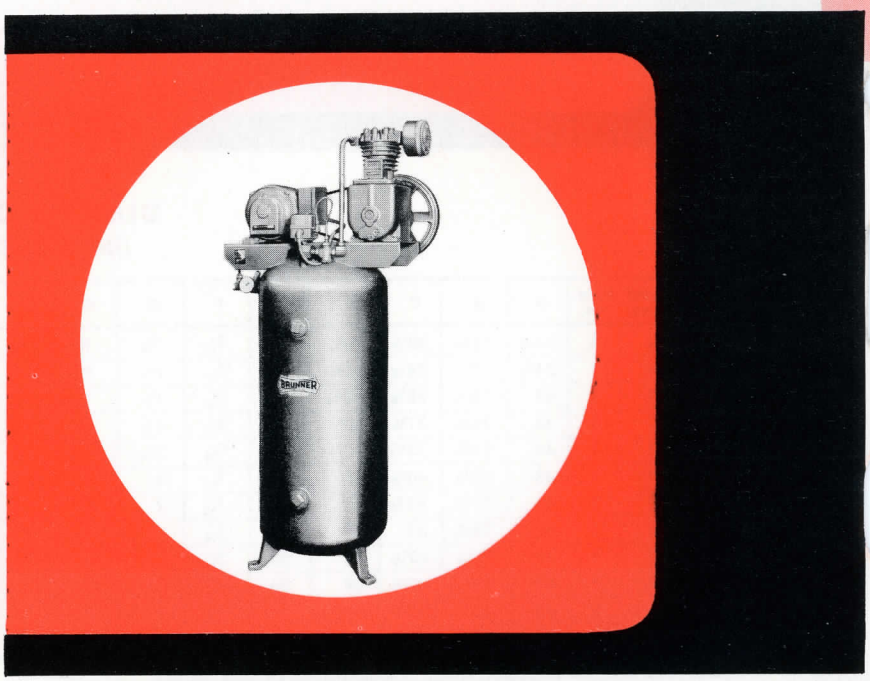
SAFETY VALVE—A.S.M.E.-approved. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

Single-Stage

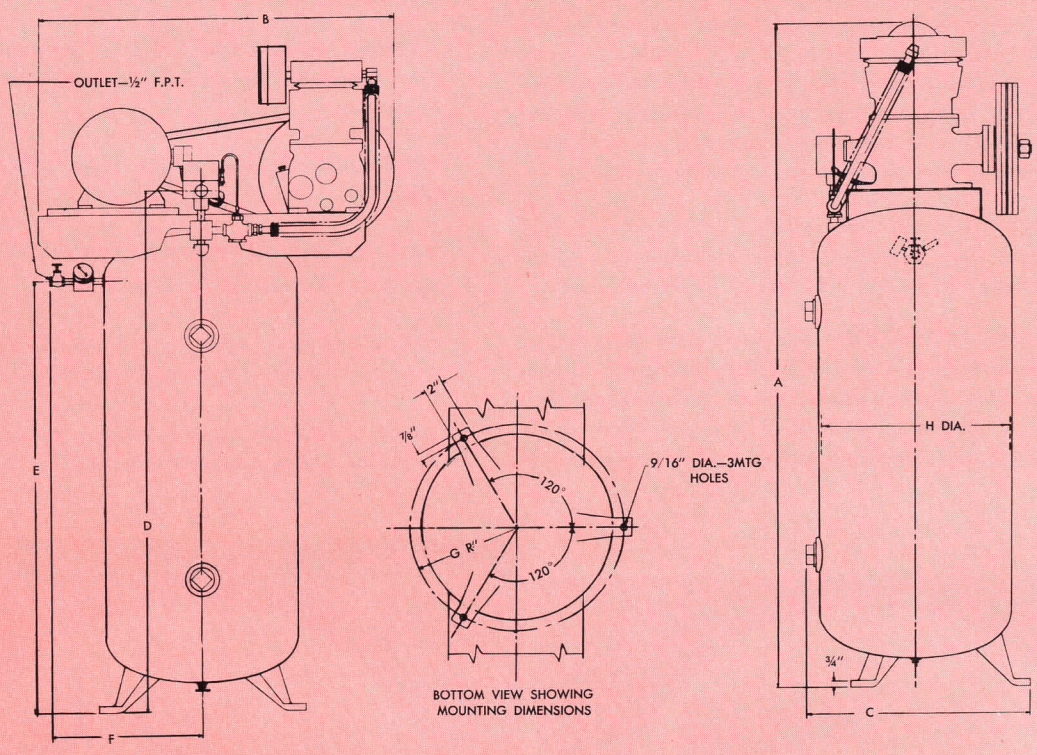
Vertical Tank-Mounted

BRUNNER SINCE 1906

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
10DV6	D	2½x1¾	2	580	150	5.76	3.51	1	2	60	504 lbs.	47
15EV6	E	2½x3	2	435	150	7.4	4.50	1½	2	60	535 lbs.	47
15EV8	E	2½x3	2	435	150	7.4	4.50	1½	2	80	620 lbs.	51
20FV6	F	3¼x2¼	2	545	150	11.7	6.90	2	2	60	595 lbs.	47
20FV8	F	3¼x2¼	2	545	150	11.7	6.90	2	2	80	660 lbs.	51



(Dwg. AP-662)

DIMENSIONS
(IN INCHES)

Model	A	B	C	D	E	F	G	H
10DV6	68	31	25⅛	54⅜	46⅝	17 3/16	9	20
15EV6	71	32 3/16	21	54⅜	46⅝	17 3/16	9	20
15EV8	68⅞	32 3/16	25⅛	52⅜	39	19 3/16	11⅛	24
20FV6	58	31⅜	25⅛	40⅜	29	19 3/16	11⅛	20
20FV8	68	31⅜	25⅛	52⅜	39	19 3/16	11⅛	24

Printed in U.S.A.
Form 690-3 6-55 (A)

BRUNNER
SINCE 1906

Single-Stage

POWER PLANTS

DESCRIPTION

GENERAL—These outfits are designed for use with remote receivers or for supplying air directly without storage. They are designed for a normal working pressure of 150 p.s.i., and are available with ¼ thru 20 H.P. motors.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Also available with continuous operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type overload protection built into ¼ H.P. thru 2 H.P. single-phase outfits insures against motor failure from such causes as continuous overload, jamming of motor drive, inability to start due to low voltage, and excessive temperature. Manual and magnetic starters are also available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

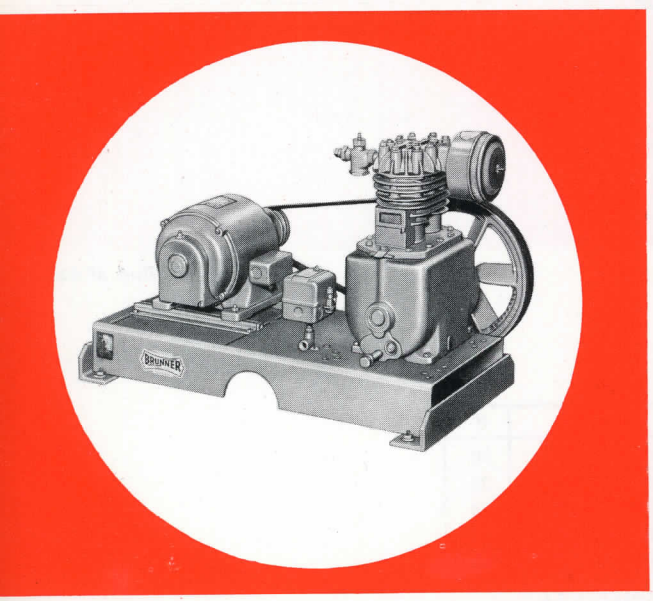
FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

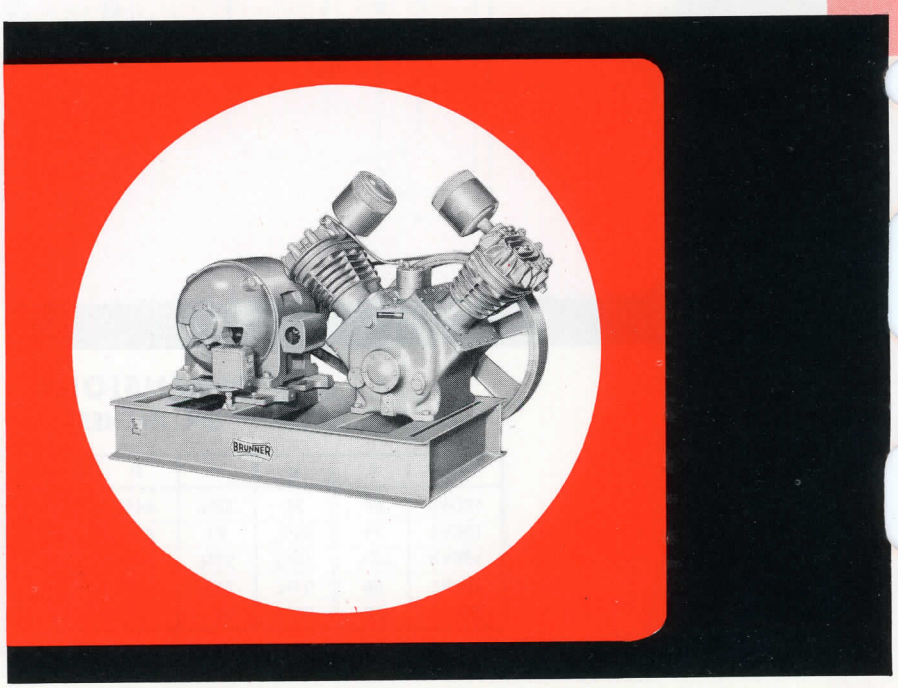
SLIDE RAILS—Enables simple rapid adjustment of "V" belts.

BASE—Constructed of extra-heavy steel for adequate support of the air compressor assembly.

CHECK VALVE—Supplied unmounted. Should be mounted approximately five feet from the discharge valve.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





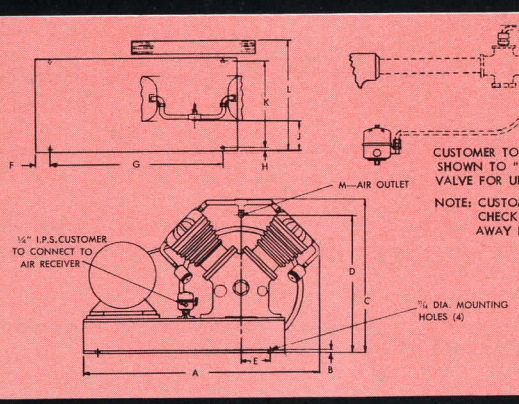
Representative Photos

Single-Stage

POWER PLANTS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Outlet Pipe Size	Approx. Shipping Weight	Boxed for Export Cu. Ft.
2AP	A	1½x1⅜	2	430	150	1.21	0.64	¼	1	⅜"	120 lbs.	8
5BP	B	1 13/16x1⅜	2	720	150	2.9	1.70	½	1	⅜"	148 lbs.	6
7CP	C	2⅛x1⅝	2	675	150	4.5	2.40	¾	1	½"	225 lbs.	13
10DP	D	2½x1¾	2	580	150	5.76	3.51	1	2	½"	270 lbs.	14
15EP	E	2½x3	2	435	150	7.4	4.50	1½	2	½"	340 lbs.	18
20FP	F	3¼x2¼	2	545	150	11.7	6.90	2	2	¾"	370 lbs.	18
30GP	G	3¼x2¼	4	440	100	19.8	13.4	3	3	¾"	550 lbs.	27
50GP	G	3¼x2¼	4	670	100	30.1	19.1	5	4	¾"	625 lbs.	27
75JP	J	4¼x3	4	515	100	50.8	34.9	7½	5	1¼"	940 lbs.	49
100JP	J	4¼x3	4	655	100	64.5	41.7	10	5	1¼"	1040 lbs.	49
150KP	K	4¼x5	4	555	100	91.0	63.4	15	5	1¼"	1695 lbs.	60
200KP	K	4¼x5	4	655	100	107.5	74.3	20	5	1¼"	1795 lbs.	60



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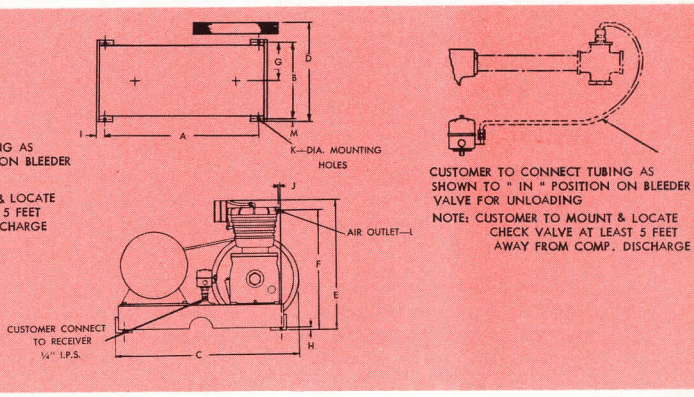


(Dwg. AP-1010)

DIMENSIONS
(IN INCHES)

Model	A	B	C	D	E	F	G	H	I	J	K	L	M
2AP	21½	12¾	24½	15⅝	16	12 11/16	5½	¼	1½	1	½	½	⅝
5BP	21½	12¾	24½	15⅝	16	12 11/16	5½	¼	1½	1	½	½	⅝
7CP	21½	12¾	25⅞	14 7/16	17⅜	15¾	6⅛	¼	1½	⅜	½	½	⅝
10DP	21½	12¾	25⅞	17¾	19¾	17	6⅛	¼	1½	5/16	½	½	⅝
15EP	31	15⅝	36 1/16	20 13/16	22¾	20 11/16	7¼	⅜	1⅞	¾	½	½	1 5/16
20FP	31	15⅝	39 7/16	21	21⅞	19⅞	7 5/16	⅜	1⅞	1 7/32	½	¾	1 5/16

CHART I

Model	A	B	C	D	E	F	G	H	J	K	L
30GP	37	¼	22¼	16½	4½	1⅞	31	1	5	15⅝	19½
50GP	37	¼	22¼	16½	4½	1⅞	31	1	5	15⅝	19½
75JP	56¾	7/32	33¼	26¾	4 15/16	4½	38½	1	17½	26	34½
100JP	56¾	7/32	33¼	26¾	4 15/16	4½	38½	1	17½	26	34½
150KP	57⅞	7/32	39¾	33¼	4 15/16	4½	38½	1	17½	26	39
200KP	68⅜	7/32	39¾	33¼	4 15/16	4½	48	1	17½	26	39

CHART II

Printed in U.S.A.
Form 690-4 6-55 (A)

BRUNNER
SINCE 1906

Single-Stage
Gasoline-Engine Driven
Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—These outfits are designed for use where electrical power supply is unobtainable. Maximum operating pressure is 150 p.s.i. Available with 1.6 H.P. thru 4.0 H.P. gasoline engines.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing to assure rapid dissipation of heat due to the high conductivity of the tubing and the large surface area.

CONTROL—A heavy-duty single-pole air pressure switch automatically shorts out the engine ignition system when the desired pressure has been built up in the air receiver. At approximately 30 percent drop in pressure, the switch automatically opens so the engine may be started manually. An air pressure release valve automatically releases the pressure in the discharge line between the compressor and the check valve each time the switch closes. This valve can be manually held open in restarting the engine, relieving the load.

ENGINES—Oversized gasoline engines are supplied to insure adequate power supply. They are of popular manufacture to facilitate prompt and easy field service when necessary.

STARTER—All single-stage gasoline engine outfits are supplied with a rope start. The air pressure switch stops the engine and acts as protection for this engine.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

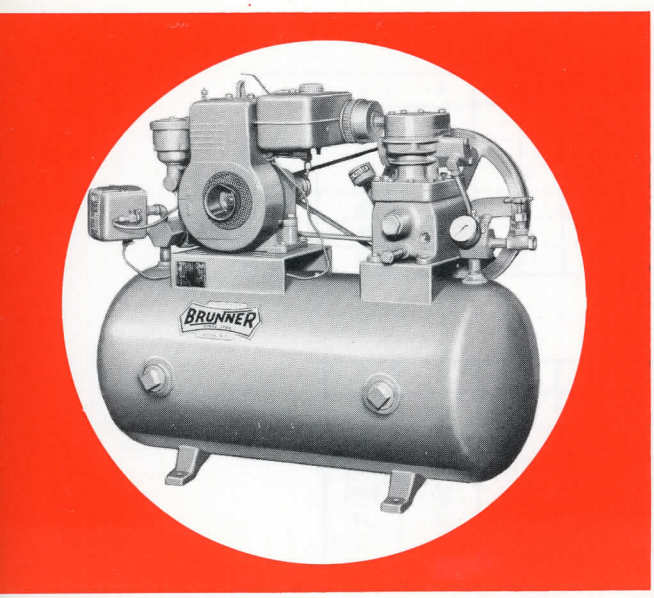
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers ranging in size from 20-gallon thru 80-gallon. These receivers are built of special analysis open-hearth, hot rolled steel plate and the quality is controlled throughout fabrication. A safety factor of five is maintained for all tanks.

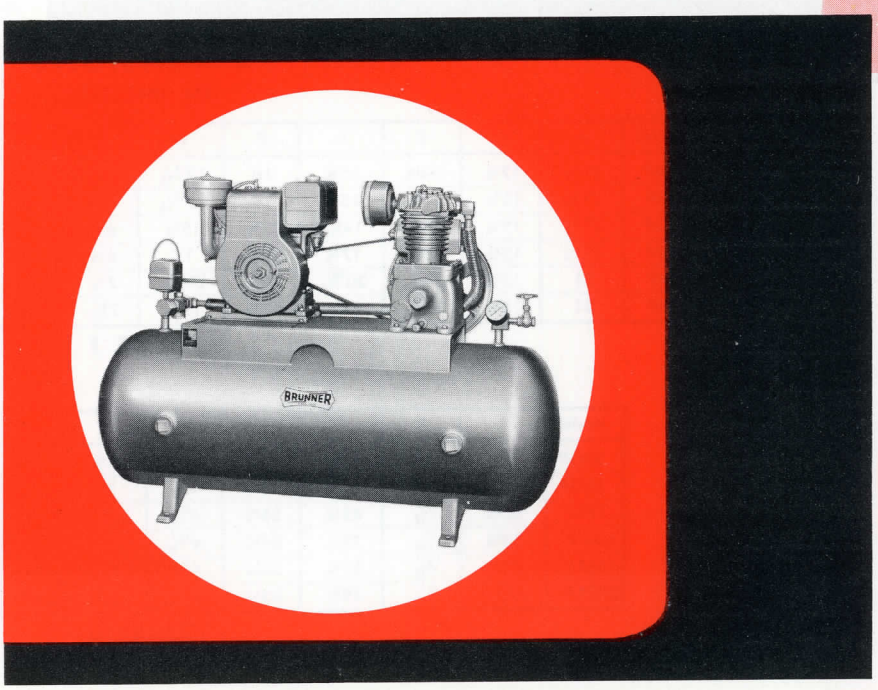
SAFETY VALVE—Supplied to give double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

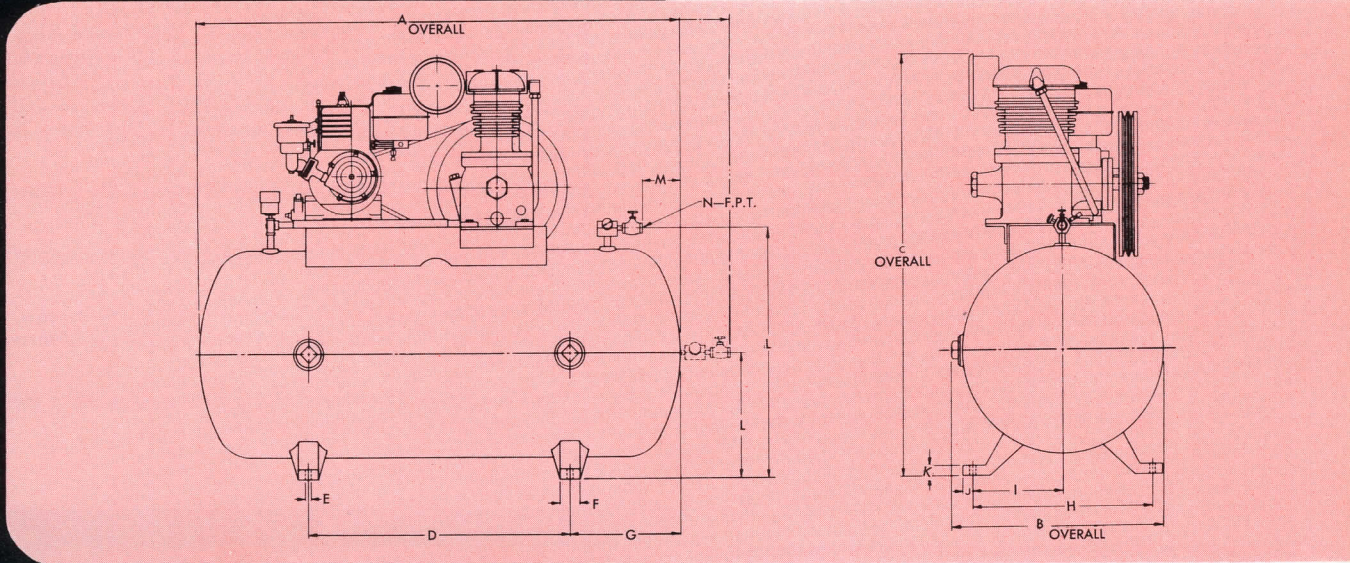
Single-Stage
Gasoline-Engine Driven
Horizontal Tank-Mounted

BRUNNER SINCE 1906

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Engine H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
16AH2-G	A	1½x1⅜	2	430	150	1.21	0.64	1.6	1	20	180 lbs.	15
16BH3-G	B	1 13/16x1⅜	2	720	150	2.96	1.70	1.6	1	32	242 lbs.	20
19CH3-G	C	2⅛x1⅝	2	675	150	4.5	2.40	1.9	1	32	350 lbs.	21
23DH3-G	D	2½x1¾	2	580	150	5.76	3.51	2.3	2	32	400 lbs.	25
23DH6-G	D	2½x1¾	2	580	150	5.76	3.51	2.3	2	60	530 lbs.	39
40EH6-G	E	2½x3	2	435	150	7.4	4.50	4	2	60	630 lbs.	39
40EH8-G	E	2½x3	2	435	150	7.4	4.50	4	2	80	680 lbs.	52
40FH6-G	F	3¼x2¼	2	545	150	11.7	6.90	4	2	60	600 lbs.	39
40FH8-G	F	3¼x2¼	2	545	150	11.7	6.90	4	2	80	655 lbs.	52



(Dwg. AP-1030)

DIMENSIONS
(IN INCHES)

	Unit	Comp.	H.P.	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	16AH2-G	A	1.6	34½	15¼	31	18	13/32	1¾	8¼	10¾	5⅜	⅞	⅝	18½	¼	⅜
1	16BH3-G	B	1.6	44	15¼	31½	24	13/32	1¾	10	10¾	5⅜	⅞	⅝	18½	½	⅜
2	16BH3-G	B	1.6	38½	17½	34	24	13/32	1¾	7¼	12¾	6⅜	⅞	⅝	23¾	¼	⅜
1	19CH3-G	C	1.9	44	15¼	31½	24	13/32	1¾	10	12¾	6⅜	⅞	⅝	18½	½	½
2	19CH3-G	C	1.9	38½	17½	34	24	13/32	1¾	7¼	12¾	6⅜	⅞	⅝	23¾	¼	½
1	23DH3-G	D	2.3	44	15¼	34¼	24	13/32	1¾	10	12¾	6⅜	⅞	⅝	18½	½	½
2	23DH3-G	D	2.3	38½	17½	35½	24	13/32	1¾	7¼	12¾	6⅜	⅞	⅝	23¾	¼	½
3	23DH6-G	D	2.3	48	22	41¼	26	9/16	2	11	18	9	⅞	¾	25½	½	½
4	23DH6-G	D	2.3	53	22	41¼	26	9/16	2	11	18	9	⅞	¾	12½	....	½
3	40EH6-G	E	4	48	22	43½	26	9/16	2	11	18	9	⅞	¾	25¾	½	½
4	40EH6-G	E	4	53	22	43½	26	9/16	2	11	18	9	⅞	¾	12½	....	½
	40EH8-G	E	4	60	22	43	36	9/16	2	12	18	9	⅞	¾	26½	3	½
3	40FH6-G	F	4	48	22	42⅝	26	9/16	2	11	18	9	⅞	¾	25¾	½	½
4	40FH6-G	F	4	53	22	42⅝	26	9/16	2	11	18	9	⅞	¾	12½	....	½
	40FH8-G	F	4	60	22	42⅝	36	9/16	2	12	18	9	⅞	¾	26	4	½

NOTE: Tanks are furnished in 2 sizes and styles as follows:

1—32 Gallon Tank, 14½ x 44
2—32 Gallon Tank, 16 x 38½
3—60 Gallon Tank, 20 x 48 Outlet on Top
4—60 Gallon Tank, 20 x 48 Outlet on End

Form No. 690- 5 6-55 (A)
Printed in U.S.A.

BRUNNER
SINCE 1906

Single-Stage
Duplex

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—These outfits feature two identical compressors and motors mounted on a common receiver. It is essentially a single air compressor outfit, with the added feature of a "built-in" alternate or stand-by outfit. It is primarily designed for the operation of one motor and compressor at a time; however, it is also possible to run both compressors at the same time if air demands are increased.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing to assure rapid dissipation of heat due to the high conductivity of the tubing and the large surface area.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release, or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Single-stage horizontal models also available with continuous-operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type overload protection built into ¼ H.P. thru 2 H.P. single-phase outfits insures against motor failure from such causes as continuous overload, jamming of motor drive, inability to start due to low voltage, and excessive temperature. Manual and magnetic starters are also available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt drives, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

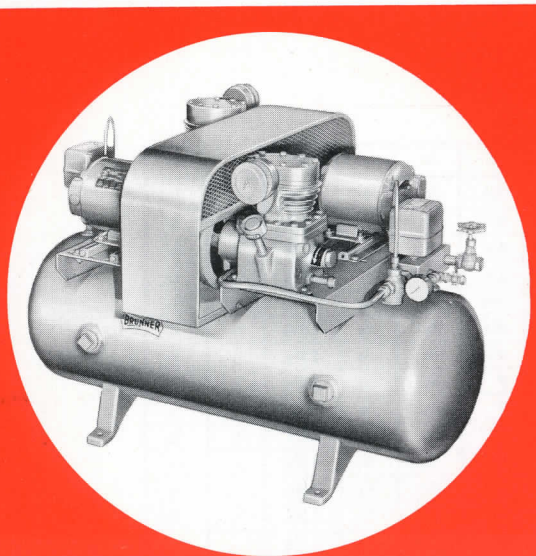
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers ranging in size from 32-gallon thru 60-gallon capacity. These receivers are built of special analysis open-hearth, hot-rolled steel plate and the quality is controlled throughout fabrication. A safety factor of five is maintained for all tanks.

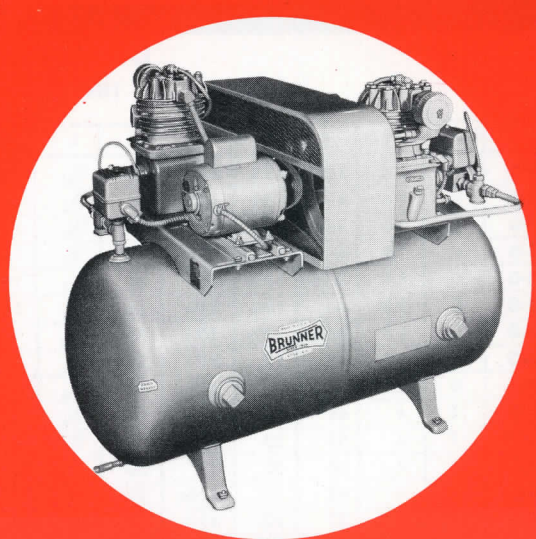
SAFETY VALVE—A.S.M.E.-approved. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





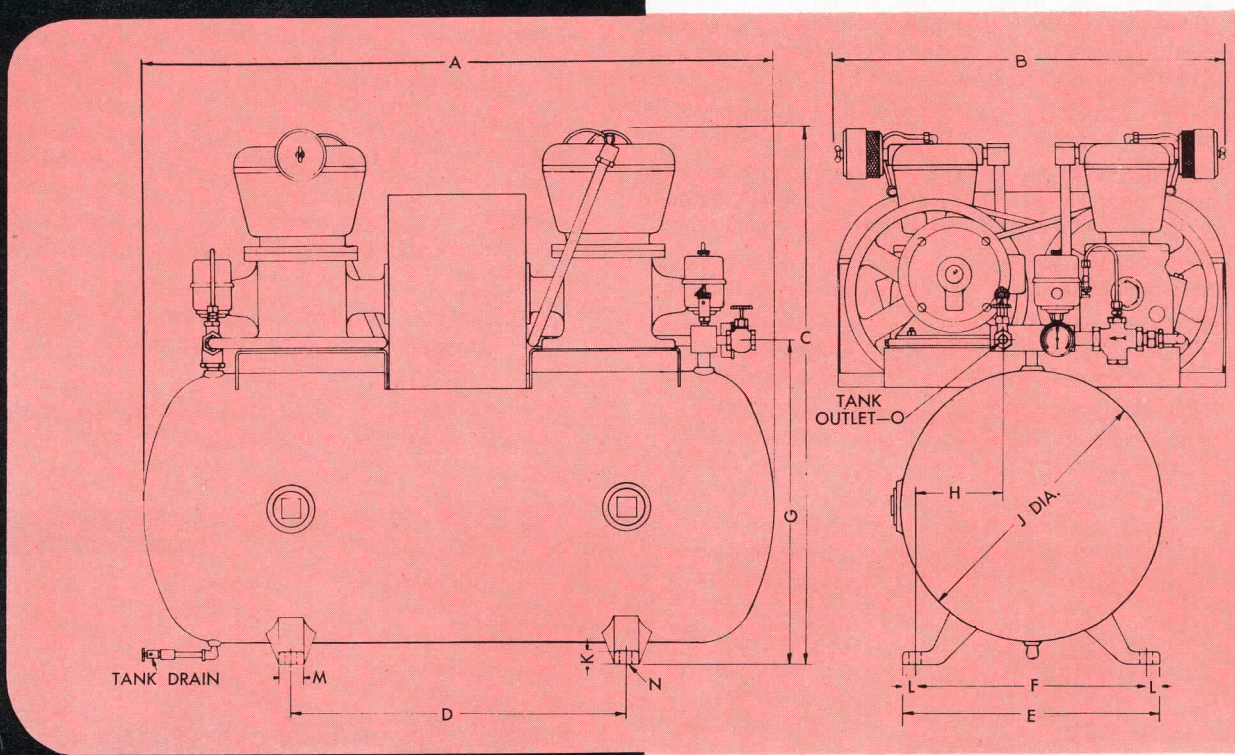
Representative Photos

Single-Stage
Duplex

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
2AH3-D	A	1½x1⅜	2	445	75	1.25	.99	(2)¼	1	32	423 lbs.	21
5BH3-D	B	1 13/16x1⅜	2	640	100	2.62	1.8	(2)½	1	32	423 lbs.	21
5CH3-D	C	2⅛x1⅝	2	420	100	2.8	1.75	(2)½	1	32	483 lbs.	25
7CH3-D	C	2⅛x1⅝	2	675	100	4.5	2.73	(2)¾	1	32	483 lbs.	25
7DH6-D	D	2½x1¾	2	495	100	4.9	2.94	(2)¾	2	60	640 lbs.	45
10DH6-D	D	2½x1¾	2	585	100	5.8	3.8	(2)1	2	60	640 lbs.	45
15EH6-D	E	2½x3	2	450	100	7.65	5.34	(2)1½	2	60	930 lbs.	45
20FH6-D	F	3¼x2¼	2	545	100	11.7	6.6	(2)2	2	60	950 lbs.	45



(Dwg. AP-1025)

DIMENSIONS
(IN INCHES)

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	O
2AH3D	44	28⅛	28	24	17⅛	15⅜	21½	5 7/16	14½	¾	⅞	2	9/16	⅜
5BH3D	44	28⅛	28	24	17⅛	15⅜	21½	5 7/16	14½	¾	⅞	2	9/16	⅜
5CH3D	44	28⅛	31½	24	17⅛	15⅜	21½	5 7/16	14½	¾	⅞	2	9/16	⅜
7CH3D	44	28⅛	31½	24	17⅛	15⅜	21½	5 7/16	14½	¾	⅞	2	9/16	⅜
7DH6D	48	28⅞	40	26	19¾	18	25 11/16	6¾	20	¾	⅞	2	9/16	½
10DH6D	48	28⅞	40	26	19¾	18	25 11/16	6¾	20	¾	⅞	2	9/16	½
15EH6D	48	34½	42	26	20½	18	26⅜	6¾	20	¼	1¼	3	3/16	½
20FH6D	48	34½	42	26	20½	18	26⅜	6¾	20	¼	1¼	3	9/16	½

Printed in U.S.A.
Form 690-6 6-55 (A)

BRUNNER
SINCE 1906

Two-Stage

SIMPLE COMPRESSORS

DESCRIPTION

GENERAL—Vertical, two and four cylinder, single-acting, reciprocating type. Two-cylinder compressors are of the upright type and available for 1½ thru 5 H.P. Four-cylinder compressors are of the "V" type and are available for 7½ thru 20 H.P.

PRECISION-BUILT—Rotating parts are manufactured within .0002" tolerances, providing long life, smooth operation and quiet performance. Cylinders are honed to a pattern to assure good oil control. Connecting rod bearings are diamond-bored in perfect alignment. Crankshafts are of high-grade alloy steel and have hardened precision-ground bearing journals.

PISTONS—Automotive-type cast iron, selected to provide perfect dynamic balance. Pistons are fitted with hardened polished alloy steel pins with brass buttons to prevent scoring cylinder walls. Piston pins rotate in diamond-bored bushings within pistons.

RINGS—Each piston is fitted with two tapered-face compression rings and one ventilated oil control ring.

CRANKCASES—Cast of close-grain iron nickel alloy, sufficiently deep to insure an adequate oil reservoir. All crankcases are equipped with internal crankcase breathers.

CYLINDERS—Cast of the same nickel alloy as the crankcase. Deeply finned to aid in the dissipation of heat.

CYLINDER HEADS—Also cast of close-grain iron nickel alloy. Equipped with extra large, scientifically designed fins which dissipate heat and reduce head temperature.

INTERCOOLERS—Of large proportion are furnished, providing rapid dissipation of heat between stages.

ECCENTRIC—Special alloy, cast iron with bronze alloy eccentric straps on Model "S" compressors. "Q", "R" and "T" Models are fitted with double-throw alloy steel crankshafts and connecting rods.

BEARINGS—Sleeve-type, heavy bronze alloy, precision-bored for easy field replacement, requiring only common tools.

VALVES—Suction and discharge valves are of the disc or flapper type and are lapped to a mirror finish, insuring high-efficiency operation. Valves are contained in a unit plate. In case of repair or replacement a complete new valve plate can be quickly installed without breaking the air line.

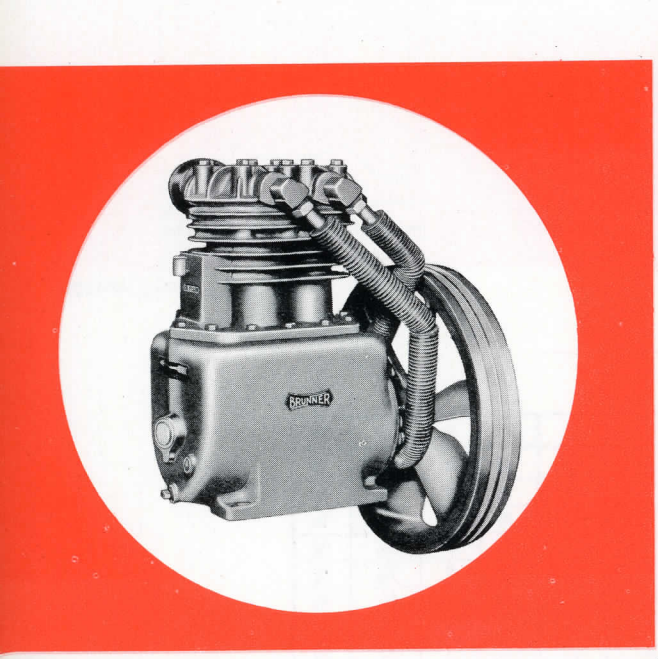
LUBRICATION—A splash-type lubrication system insures complete lubrication at all times. Bull's-eye oil sight gauge readily indicates oil level.

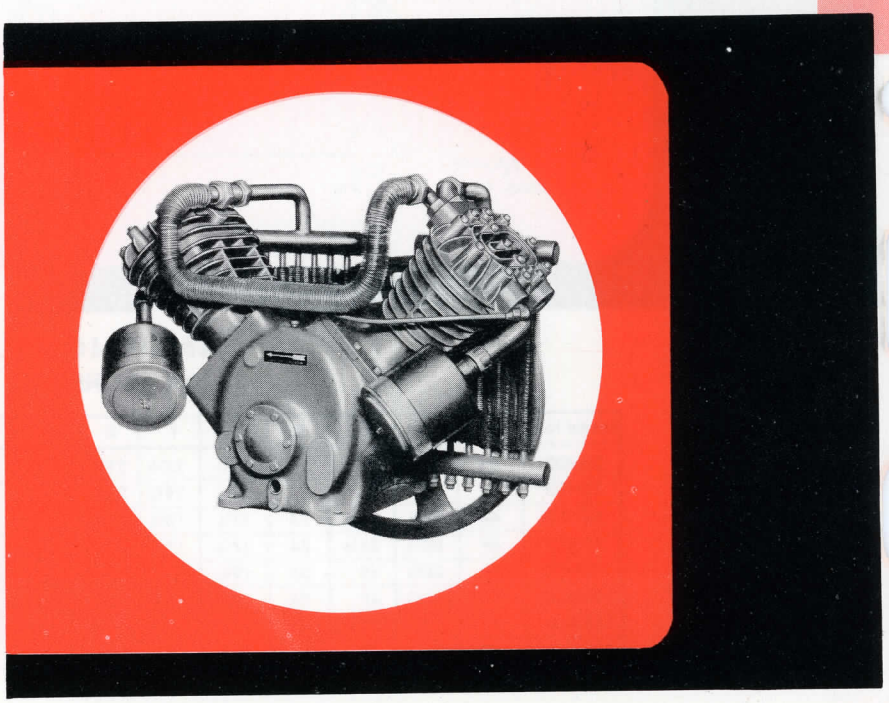
DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

MUFFLER-FILTER—Air intake muffler-filter of the impingement-type insures silent operation and long life. Filter is readily removable and cleanable.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

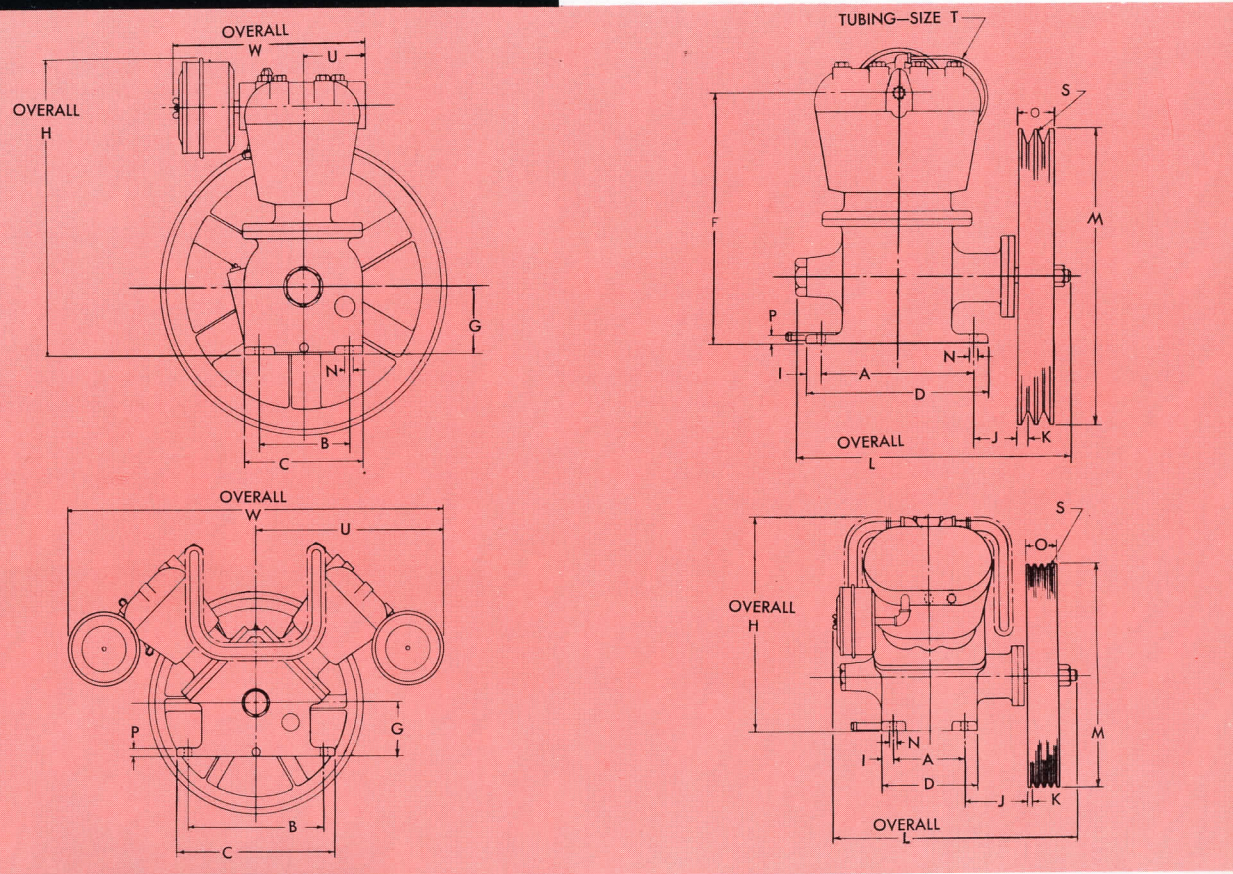
BRUNNER
SINCE 1906

Two-Stage

SIMPLE COMPRESSORS

SPECIFICATIONS

Model No.	No. Cyl.	Bore and Stroke	Motor Size H.P. Required	Max. Comp. R.P.M.	Max. Cut Off Press. Setting	Displ. Cu. In. Per Revolution	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Fly Wheel Pulley Size	Outlet Pipe Size	Fly Wheel Pulley Grooves	Ship. Weight Lbs.	Boxed for Export Cu. Ft.
Q	2	3½x1 13/16x3	1½	435	175	28.7	7.25	5.2	14"	½"	2	165	8
Q	2	3½x1 13/16x3	2	625	175	28.7	10.4	7.4	14"	½"	2	165	8
R	2	4½x2½x4	3	400	175	63.2	14.6	12.0	18"	¾"	3	235	8
R	2	4½x2½x4	5	610	175	63.2	22.2	18.0	18"	¾"	3	235	8
S	4	4¼x4¼x3	7½	450	175	127.7	33.2	28.1	26"	1"	5	805	27
S	4	4¼x4¼x3	10	555	175	127.7	41.0	35.0	26"	1"	5	805	27
T	4	4¼x4¼x5	15	655	175	212.0	80.7	66.2	26"	1"	5	1100	30



(Dwg. AP-160)

DIMENSIONS
(IN INCHES)

Comp. Model	A	B	C	D	F	G	H	I	J	K	L	M	N	O	P	S	T	U	V	W
Q	7⅞	6⅝	7½	8 13/16	6 3/16	4	19¼	15/32	3 15/32	⅝	16⅝	14	13/32	1⅞	⅝	2-A	*	2⅝	½	13½
R	9	8	9¼	10 3/16	18⅞	5 15/16	21⅞	13/16	4	¾	19 3/16	18	15/32	2¾	⅝	3-A	*	4 11/16	¾	21
S	13⅝	9⅞	12⅜	16⅛		6⅜	24¾	1¼	4⅞	½	27 3/16	26	11/16	4	¾	5-B	⅜	19⅛	1	38¼
T	13⅝	9⅞	12⅜	15½		6⅜	30	15/16	6⅜	½	24½	26	11/16	4	¾	5-B	⅜	18 13/16	1	37⅝

*The Crankcase Breather Passage is within cylinder casting on these models.

Printed in U.S.A.
Form No. 690-7 6-55 (A)

BRUNNER
SINCE 1906

Two-Stage

Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—Designed for working pressures in excess of 150 p.s.i. They have a normal working pressure setting of 175 p.s.i. These outfits are available with 1½ H.P. thru 15 H.P. motors.

COMPRESSOR—See "Two-Stage Simple Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing on 1½ and 2 H.P. models. On 3 H.P. outfits and larger, it is supplied as finned copper tubing to insure adequate cooling due to the high conductivity of the tubing and its design.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Two-stage horizontal models also available with continuous-operating or dual-operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type built into motor on 1½ and 2 H.P. single-phase models. Insures against motor failure from continuous overload, jamming of motor drive, inability to start due to low voltage, or excessive temperature. Manual and magnetic starters available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

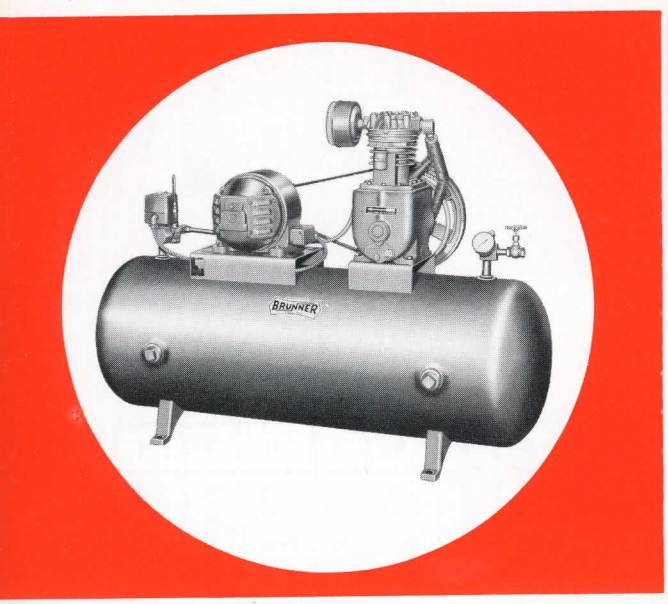
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers, ranging in size from 60 thru 120-gallon capacity. These receivers are built of special analysis open-hearth, hot-rolled steel plate and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

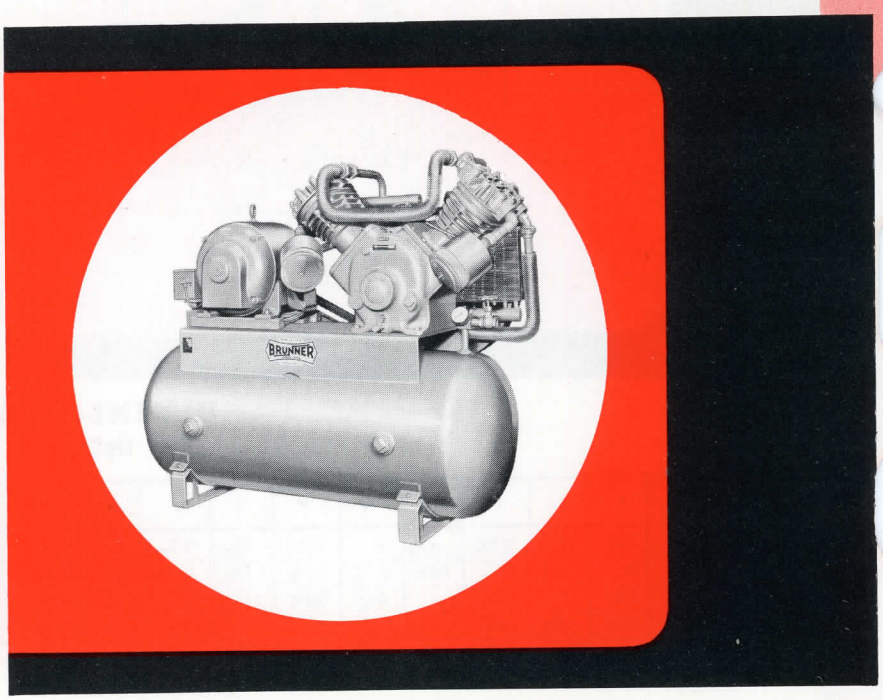
SAFETY VALVE—A.S.M.E.-approved. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

Two-Stage

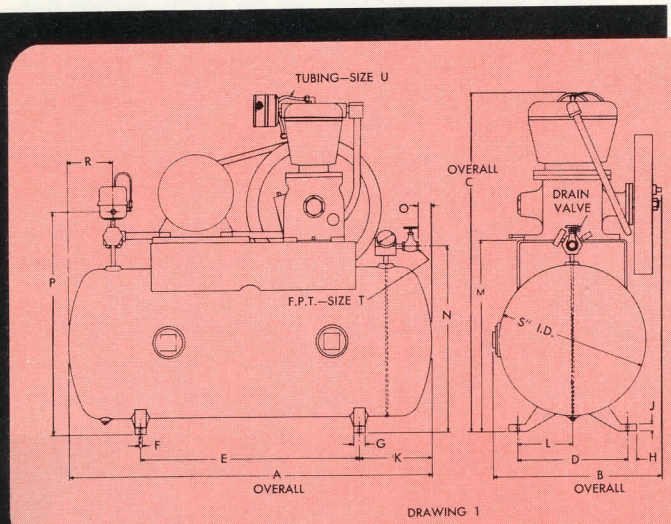
Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

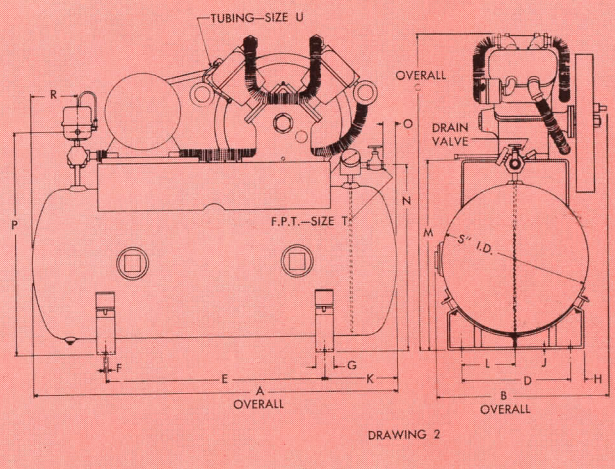
BRUNNER SINCE 1906

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. # /□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
15QH6	Q	3½x1 13/16x3	2	435	175	7.25	5.2	1½	2	60	570 lbs.	39
15QH8	Q	3½x1 13/16x3	2	435	175	7.25	5.2	1½	2	80	605 lbs.	52
20QH6	Q	3½x1 13/16x3	2	625	175	10.4	7.4	2	2	60	650 lbs.	39
20QH8	Q	3½x1 13/16x3	2	625	175	10.4	7.4	2	2	80	700 lbs.	52
30RH8	R	4½x2½x4	2	400	175	14.6	12.0	3	3	80	720 lbs.	52
30RH12	R	4½x2½x4	2	400	175	14.6	12.0	3	3	120	1060 lbs.	77
50RH8	R	4½x2½x4	2	610	175	22.2	18.0	5	3	80	745 lbs.	53
50RH12	R	4½x2½x4	2	610	175	22.2	18.0	5	3	120	1100 lbs.	76
75SH8	S	4¼x4¼x3	4	450	175	33.2	28.1	7½	5	80	1420 lbs.	77
75SH12	S	4¼x4¼x3	4	450	175	33.2	28.1	7½	5	120	1680 lbs.	89
100SH8	S	4¼x4¼x3	4	555	175	41.0	35.0	10	5	80	1440 lbs.	77
100SH12	S	4¼x4¼x3	4	555	175	41.0	35.0	10	5	120	1700 lbs.	89
150TH12	T	4¼x4¼x5	4	555	175	68.2	56.5	15	5	120	2100 lbs.	99



DRAWING 1



DRAWING 2

(Dwg. AP-729)

DIMENSIONS
(IN INCHES)

Model No.	Comp. No.	Photo No.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U
15QH6	Q	1	48	21⅜	43⅝	18	26	9/16	2	⅞	¾	11	9	24⅜	25⅜	....	28⅛	5	20	½	*
15QH8	Q	1	60	21⅝	43¾	18	36	9/16	2	⅞	¾	12	9	24½	25⅝	3½	30	8	20	½	*
20QH6	Q	1	48	21¼	43¾	18	26	9/16	2	⅞	¾	11	9	24½	25½	½	28¼	5	20	½	*
20QH8	Q	1	60	21¾	43¾	18	36	9/16	2	⅞	¾	12	9	24½	25½	3¼	28¼	8	20	½	*
30RH8	R	1**	60	22	45⅞	18	36	9/16	3	1¼	¼	12	9	23¾	24⅞	3½	29⅜	8	20	½	*
30RH12	R	1**	64	26	50⅜	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	29	1⅝	31½	6⅞	24	¾	*
50RH8	R	1**	60	23¼	45⅝	18	36	9/16	3	1¼	¼	12	9	23¾	24¾	3½	27½	8	20	½	*
50RH12	R	1**	64	26	50⅜	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	29	1⅝	31½	6⅞	24	¾	*
75SH8	S	2	60	31¼	48⅝	18	36	9/16	3	1¼	¼	12	9	23⅞	25⅞	2¾	30⅜	8	20	¾	⅜
75SH12	S	2	65	31⅛	53¼	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	29⅝	1⅝	34⅛	6⅞	24	¾	⅜
100SH8	S	2	60	31¼	48⅝	18	36	9/16	3	1¼	¼	12	9	23⅞	25⅞	2¾	30⅜	8	20	¾	⅜
100SH12	S	2	64	31¼	53¼	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	30½	2	34¾	6⅞	24	¾	⅜
150TH12	T	2	66	32¼	55¼	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	29¾	2⅛	34¾	5⅛	24	¾	⅜

*The Crankcase Breather Passage is within cylinder casting on these models.
**For tank leg dimensions see Photo No. 2.

Printed in U.S.A.
Form No. 690-8 6-55 (A)

BRUNNER
SINCE 1906

Two-Stage
Vertical Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—These outfits are designed for use where space is limited. They are designed for use with pressures in excess of 150 p.s.i. and are available with 1½ thru 3 H.P. motors. The normal working pressure setting is 175 p.s.i.

COMPRESSOR—See "Two-Stage Simple Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as finned copper tubing on two-stage models to assure rapid dissipation of heat due to the high conductivity of the tubing and the large surface area.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated switch, equipped with a two-way release or bleeder valve. This control allows starting of the compressor under no load since the discharge line has been bled down to atmospheric pressure. Two-stage vertical models are also available with continuous operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type built into motor on 1½ and 2 H.P. single-phase models. Insures against motor failure from continuous overload, jamming of motor drive, inability to start due to low voltage, or excessive temperature. Manual and magnetic starters available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

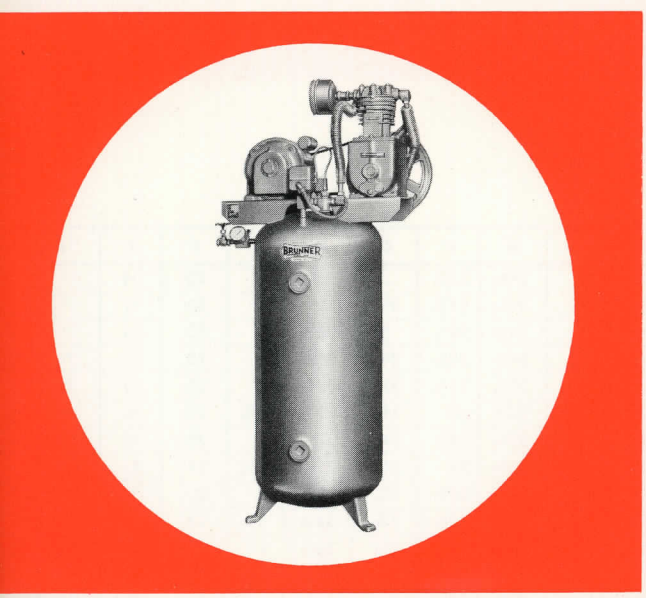
RECEIVER—A.S.M.E. (National Board) constructed vertical receivers, ranging in size from 60 thru 80-gallon capacity. These receivers are built of a special analysis open-hearth hot-rolled steel plate and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

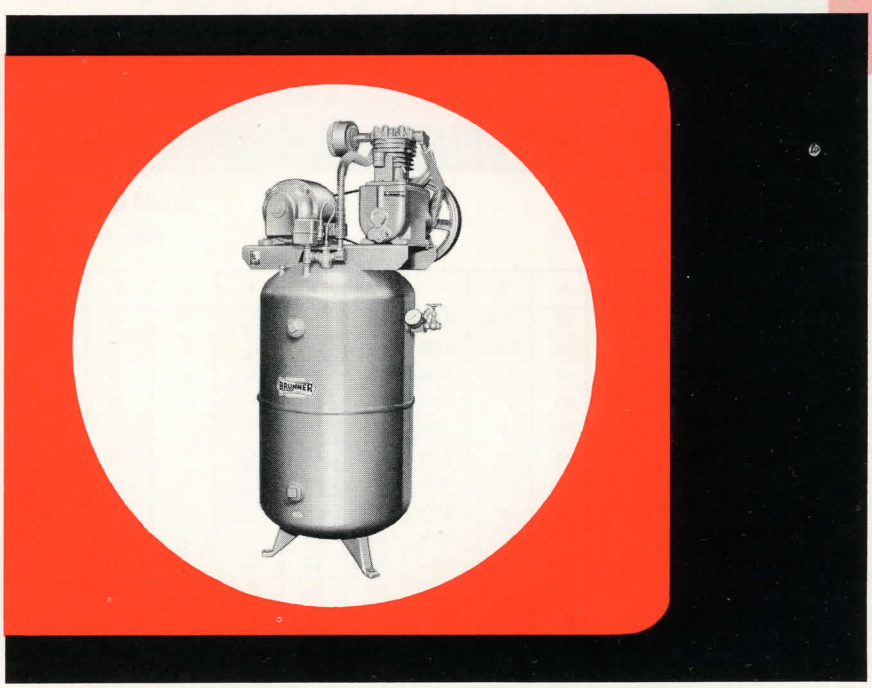
SAFETY VALVE—A.S.M.E.-ap[redacted]l. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

Two-Stage

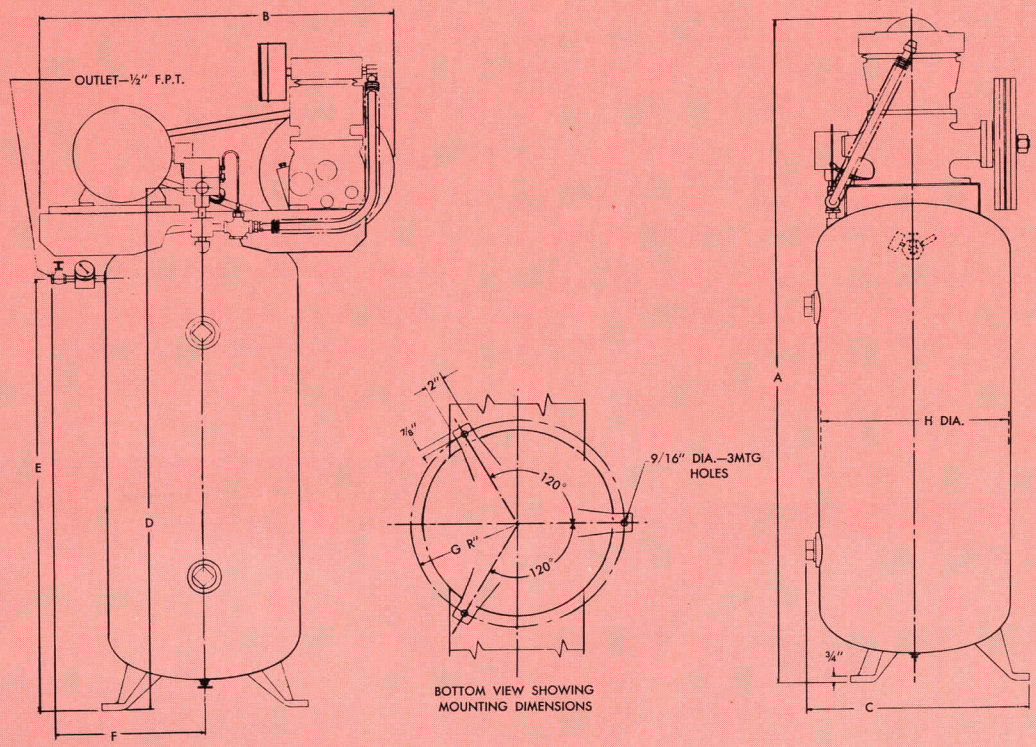
Vertical Tank-Mounted

BRUNNER SINCE 1906

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
15QV6	Q	3½x1 13/16x3	2	435	175	7.25	5.2	1½	2	60	545 lbs.	47
15QV8	Q	3½x1 13/16x3	2	435	175	7.25	5.2	1½	2	80	620 lbs.	51
20QV6	Q	3½x1 13/16x3	2	625	175	10.4	7.4	2	2	60	570 lbs.	47
20QV8	Q	3½x1 13/16x3	2	625	175	10.4	7.4	2	2	80	660 lbs.	51
30RV8	R	4½x2½x4	2	400	175	14.6	12.0	3	3	80	690 lbs.	53



(Dwg. AP-662)

DIMENSIONS
(IN INCHES)

Model	A	B	C	D	E	F	G	H
15QV6	71 3/8	31 5/8	21	54 3/8	46 5/8	17 3/16	9	20
15QV8	69 3/8	31 5/8	25 1/8	52 3/8	39	19 3/16	11 1/8	24
20QV6	71 3/8	31 5/8	21	54 3/8	46 5/8	17 3/16	9	20
20QV8	69 3/8	31 5/8	25 1/8	52 3/8	39	19 3/16	11 1/8	24
30RV8	73	33 5/8	25 1/8	52 3/8	39	19 3/16	11 1/8	24

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Form No. 690-9 6-55 (A)

BRUNNER
SINCE 1906

Two-Stage

POWER PLANTS

DESCRIPTION

GENERAL—These outfits are designed for use with remote receivers or for supplying air directly without storage. They are designed for working pressures in excess of 150 p.s.i. and are available with 1½ thru 20 H.P. motors.

COMPRESSOR—See "Two-Stage Simple Compressor" Section for a detailed description of the compressor types furnished with these outfits.

CONTROL—Automatic start-stop control is standard equipment and consists of a heavy-duty, 2-pole air pressure-operated electric pressure switch, equipped with a two-way release, or bleeder valve. This control allows starting of the compressor under no load, since the discharge line has been bled down to atmospheric pressure. Two-stage models also available with continuous operating or dual operating controls.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type built into motor on 1½ and 2 H.P. single-phase models. Insures against motor failure from continuous overload, jamming of motor drive, inability to start due to low voltage, or excessive temperature. Manual and magnetic starters available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

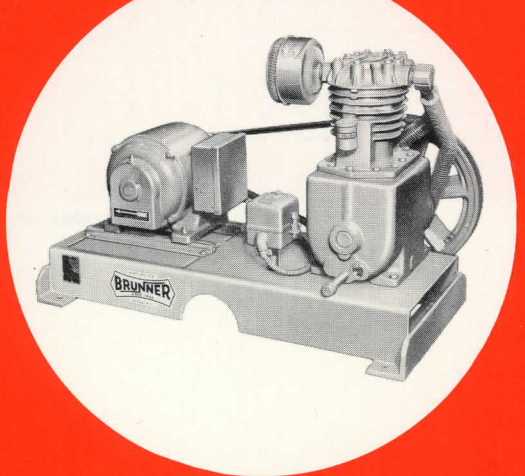
FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

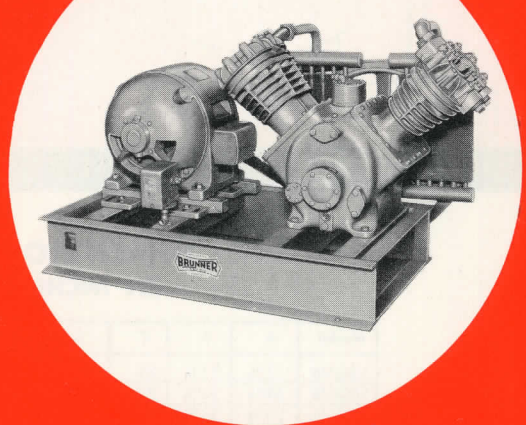
SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

BASE—Constructed of extra-heavy steel for adequate support of the air compressor assembly.

CHECK VALVE—Supplied unmounted. Should be mounted approximately five feet from the discharge valve.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





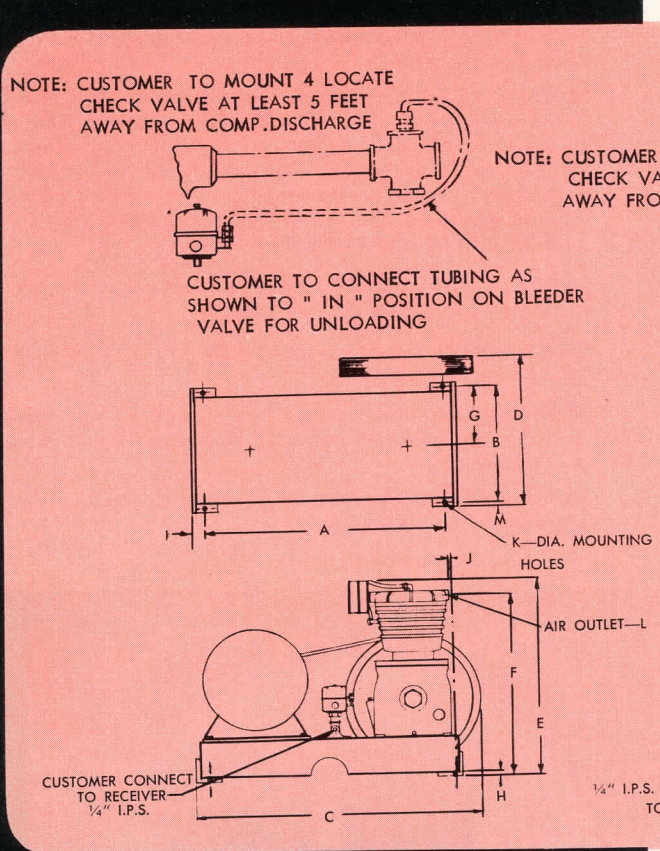
Representative Photos

Two-Stage

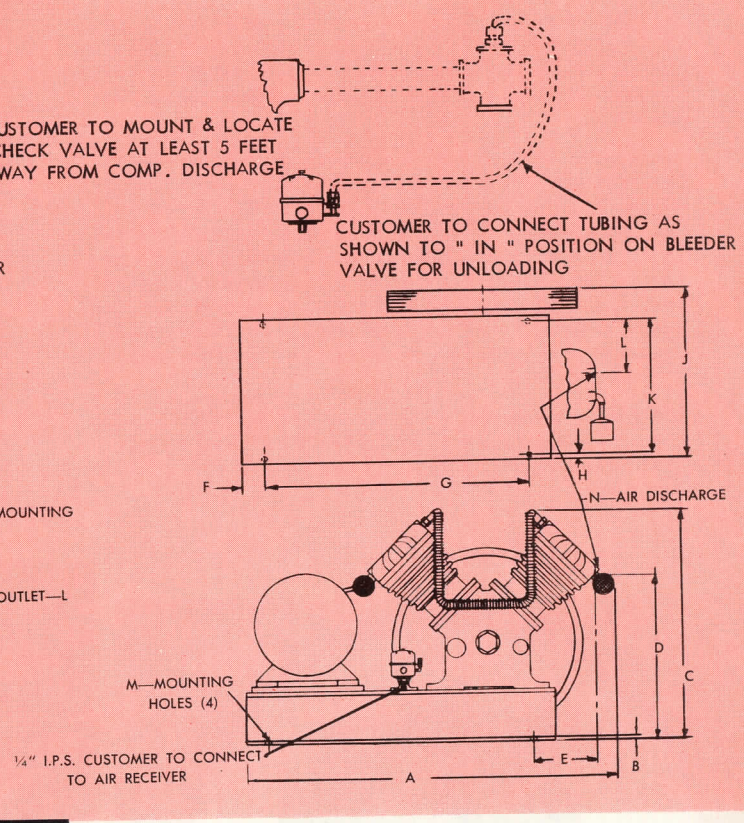
POWER PLANTS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Motor H.P.	No. of Belts	Outlet Pipe Size	Approx. Shipping Weight	Boxed for Export Cu. Ft.
15QP	Q	3½x1 13/16x3	2	435	175	7.25	5.2	1½	2	½"	375 lbs.	25
20QP	Q	3½x1 13/16x3	2	625	175	10.4	7.4	2	2	½"	405 lbs.	25
30RP	R	4½x2½x4	2	400	175	14.6	12.0	3	3	¾"	550 lbs.	27
50RP	R	4½x2½x4	2	610	175	22.2	18.0	5	3	¾"	625 lbs.	27
75SP	S	4¼x4¼x3	4	450	175	33.2	28.1	7½	5	1"	1200 lbs.	55
100SP	S	4¼x4¼x3	4	555	175	41.0	35.0	10	5	1"	1300 lbs.	55
150TP	T	4¼x4¼x5	4	555	175	68.5	56.5	15	5	1"	1700 lbs.	65
200TP	T	4¼x4¼x5	4	655	175	80.7	66.2	20	5	1"	1800 lbs.	65



(Dwg. AP-1010)



(Dwg. AP-1009)

DIMENSIONS
(IN INCHES)

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P
15QP	36 1/16	3/8	23¼	21¼	.....	1⅞	31	1 5/16	20 13/16	15⅝	8½	½	½	8 3/16
20QP	36 1/16	3/8	23¼	21¼	.....	1⅞	31	1 5/16	20 13/16	15⅝	8½	½	½	8 3/16
30RP	36 11/16	3/8	25 11/16	23 11/16	.....	1⅞	31	1 5/16	19¾	15⅝	5⅝	½	¾	8 15/16
50RP	36 11/16	3/8	25 11/16	23 11/16	.....	1⅞	31	1 5/16	19¾	15⅝	5⅝	½	¾	8 15/16
75SP	58¾	7/32	33¼	24	11 1/16	4½	38½	1	34½	26	4⅜	11/16	1	.....
100SP	58¾	7/32	33¼	24	11 1/16	4½	38½	1	34½	26	4⅜	11/16	1	.....
150TP	59⅞	7/32	39¾	30¼	12 5/16	4½	38½	1	39	26	4⅜	11/16	1	.....
200TP	68⅜	7/32	39¾	30¼	11 5/16	4½	48	1	39	26	4⅜	11/16	1	.....

Printed in U.S.A.
Form No. 690-10 6-55 (A)

BRUNNER
SINCE 1906

Two-Stage
Gasoline Engine-Driven
Horizontal Tank-Mounted
AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—These outfits are designed for use where electrical power supply is unobtainable; for operating pressure in excess of 150 p.s.i. Available with 4.0 H.P. gasoline engines and 60 or 80-gallon receivers. These are also available as the "Dual-Tank" type which are equipped with two attached 17½-gallon tanks and an 8.0 H.P. gasoline engine for intermittent operation. For continuous operation, a 7.5 H.P. gasoline engine is furnished on "Dual" Tank outfits.

COMPRESSOR—See "Two-Stage Simple Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing on "Q" Type compressors, finned copper tubing on "R" Type compressors to insure rapid dissipation of heat due to the surface area exposed and the high conductivity of the tubing.

CONTROL—A heavy-duty single-pole air pressure switch, automatically shorts out the engine ignition system when the desired pressure has been built up in the air receiver. At approximately 30% drop in pressure the switch automatically opens so the engine may be started manually. An air pressure release valve automatically releases the pressure in the discharge line between the compressor and the check valve each time the switch closes. This valve can be manually held open in restarting the gasoline engine, relieving the load.

ENGINES—Oversized gasoline engines are supplied to insure adequate power supply. They are of popular manufacture to facilitate prompt and correct field service when necessary.

STARTER—Models of 4.0 H.P. supplied with rope start. The air pressure switch stops the engine and acts as its protection. Other models available with either electric or rope start.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Grooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

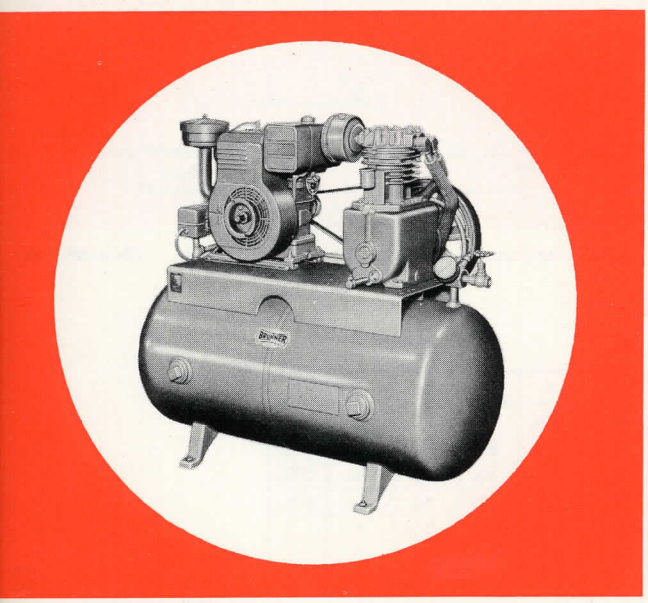
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers of 17½, 60 or 80 gallon capacity. Those models using 17½-gallon receivers use two tanks attached, thus making a total capacity of 35 gallons. All receivers are built of special-analysis open-hearth, hot-rolled steel plate, and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

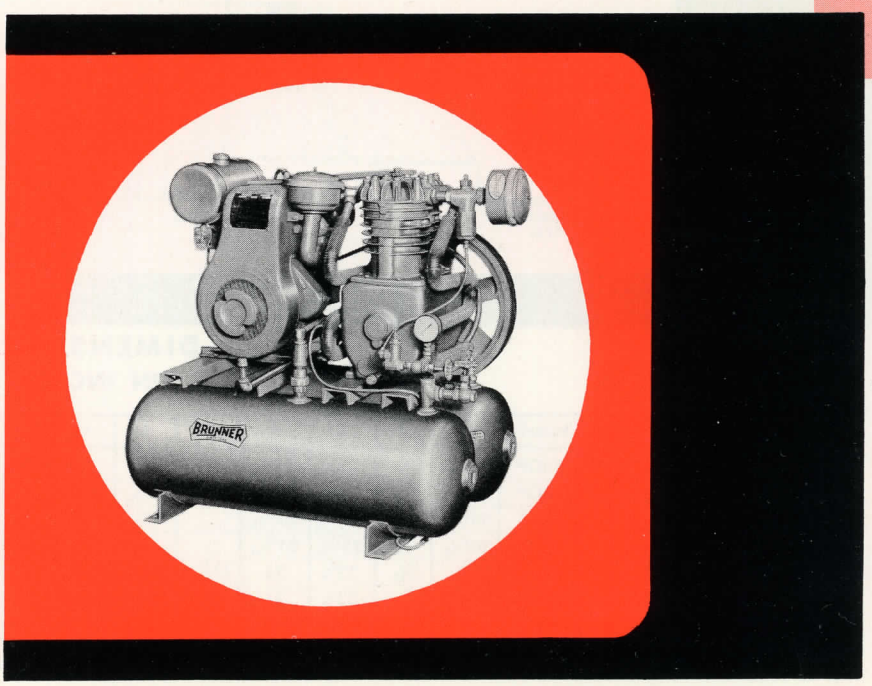
SAFETY VALVE—A.S.M.E. approved, supplied to give double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





Representative Photos

Two-Stage
Gasoline Engine-Driven
Horizontal Tank-Mounted

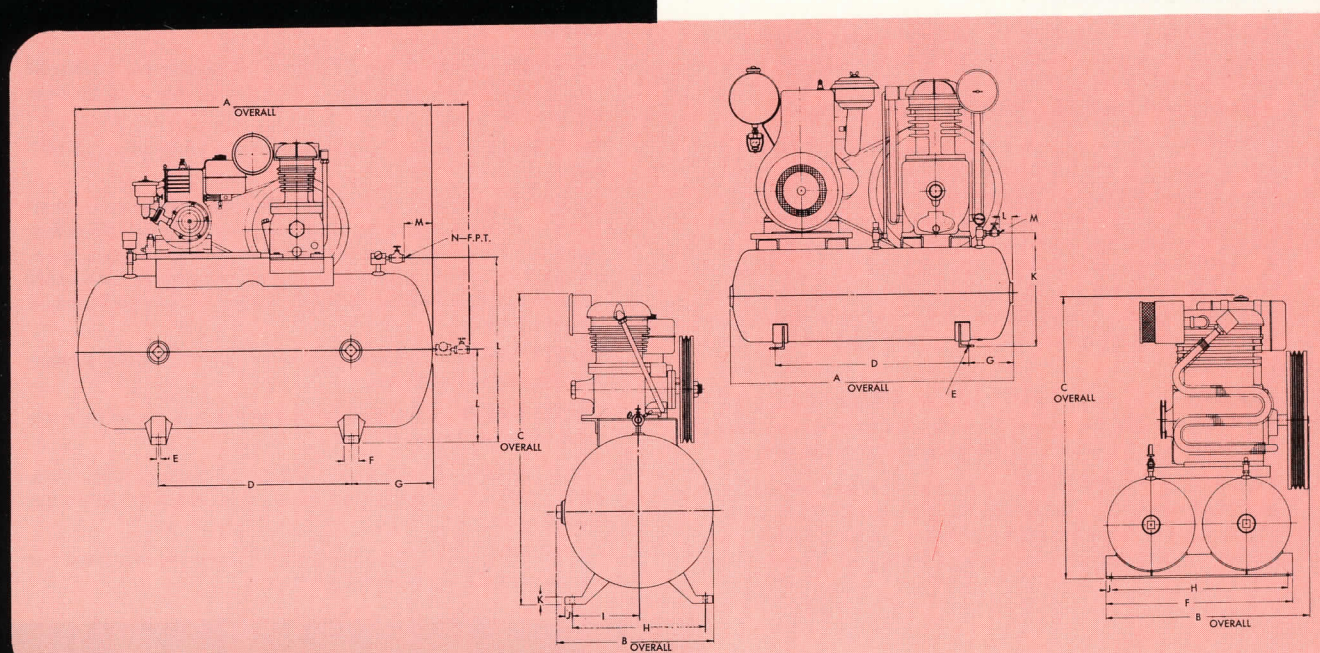
BRUNNER SINCE 1906

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	Bore and Stroke	No. Cyl.	Comp. R.P.M.	Max. Cut Off Pr. Sett. #/□"	Cu. Ft. Displ. Per Min.	Cu. Ft. Free Air Per Min.	Engine H.P.	No. of Belts	Tank Size Gals.	Approx. Shipping Weight	Boxed for Export Cu. Ft.
40QH6-G	Q	3½x1 13/16x3	2	625	175	10.4	7.4	4.0	2	60	670 lbs.	39
40QH8-G	Q	3½x1 13/16x3	2	625	175	10.4	7.4	4.0	2	80	720 lbs.	52
*75RN3-G	R	4½x2½x4	2	535	175	20.4	16.0	7.5	3	2-17½	625 lbs.	30
*80RN3-G	R	4½x2½x4	2	535	175	20.4	16.0	8.0	3	2-17½	675 lbs.	30

NOTE: On DU-AL Models add suffix "A" for start-stop operation. Add suffix "U" for continuous operation.
*Available with either electric or rope start.



(Dwg. AP-1030)

(Dwg. AP-1032)

DIMENSIONS
(IN INCHES)

CHART I

Unit	Comp.	H.P.	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1—40QH6-G	Q	4	48	22	43½	26	9/16	2	11	18	9	7/8	¾	25¾	½	½
2—40QH6-G	Q	4	53	22	43½	26	9/16	2	11	18	9	7/8	¾	12½	....	½
40QH8-G	Q	4	60	22	43	36	9/16	2	12	18	9	7/8	¾	26½	3	½

NOTE: Tanks are furnished in 2 styles as follows:
1—60 Gallon Tank, 20 x 48 Outlet on Top
2—60 Gallon Tank, 20 x 48 Outlet on End

CHART II
DuAl Outfits

Unit	Comp.	H.P.	A	B	C	D	E	F	G	H	J	K	L	M
75RN3-G	R	7½	40	28	37½	26	9/16	25 3/8	6¾	24	11/16	15¼	2	½
80RN3-G	R	8	40	28	37½	26	9/16	25 3/8	6¾	24	11/16	15¼	2	½

Form No. 690-11 6-55 (A)
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BRUNNER
SINCE 1906

Continuous Operation
Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

DESCRIPTION

GENERAL—Designed for applications where the demand for air is constant. An unloader arrangement is supplied to enable the compressor to run without pumping air. These outfits are for use at the lower pressure ranges and are available with ¼ thru 15 H.P. motors.

COMPRESSOR—See "Single Stage Compressor" Section for a detailed description of the compressor types furnished with these outfits.

AFTERCOOLER—Supplied as straight copper tubing on single stage models thru 2 H.P. Models of 3 H.P. and larger use finned copper tubing to insure rapid dissipation of heat due to the high conductivity of the tubing.

CONTROL—There are two types of controls used, both types based on the principle of closing off the suction, thereby permitting the compressor to idle under no load. On units of ¼ thru 5 H.P., there are two main components to accomplish this; one, the trigger valve and the other, a total Klosure suction unloader. Units 7½ H.P. thru 15 H.P. use a trigger valve and internal suction unloader, assembled in the cylinder head. This is used to depress the suction valves against their seats and unload the compressor.

MOTORS—All outfits use standard NEMA frame, 1750 RPM heavy-duty motors of popular manufacture to facilitate prompt and correct field service where necessary.

OVERLOAD PROTECTION—Automatic reset integral-type overload protection built into ¼ H.P. thru 2 H.P. single-phase outfits insures against motor failure from such causes as continuous overload, jamming of motor drive, inability to start due to low voltage, and excessive temperature. Manual and magnetic starters are also available as an extra for all models. We recommend the use of motor protection on all installations.

AIR RELEASE—Automatically prevents motor from starting against load.

DRIVE—Multiple "V" belt-type drive, designed with a large safety factor to insure full power transmission and long life.

FLYWHEEL—Gooved for "V" belts. Dynamically balanced for vibrationless operation. Fan-type design aids in heat dissipation.

SLIDE RAILS—Enables simple and rapid adjustment of "V" belts.

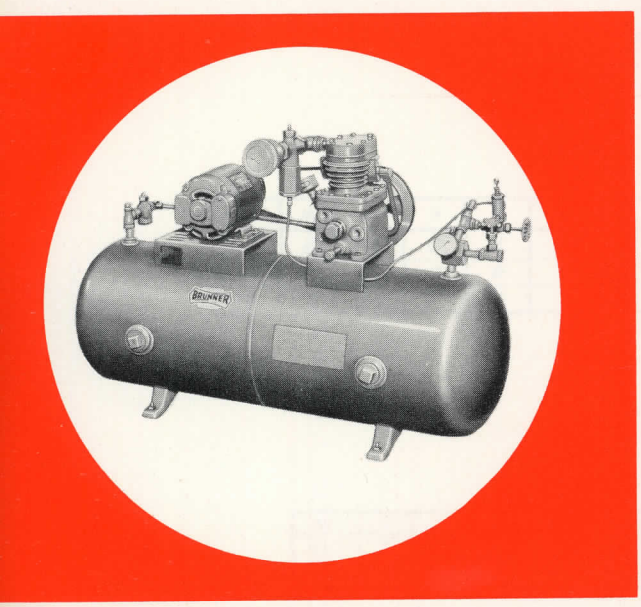
RECEIVER—A.S.M.E. (National Board) constructed horizontal receivers, ranging in size from 20 thru 120-gallon capacity. These receivers are built of special analysis open-hearth, hot rolled, steel plate and the quality is controlled throughout fabrication. A safety factor of 5 is maintained for all tanks.

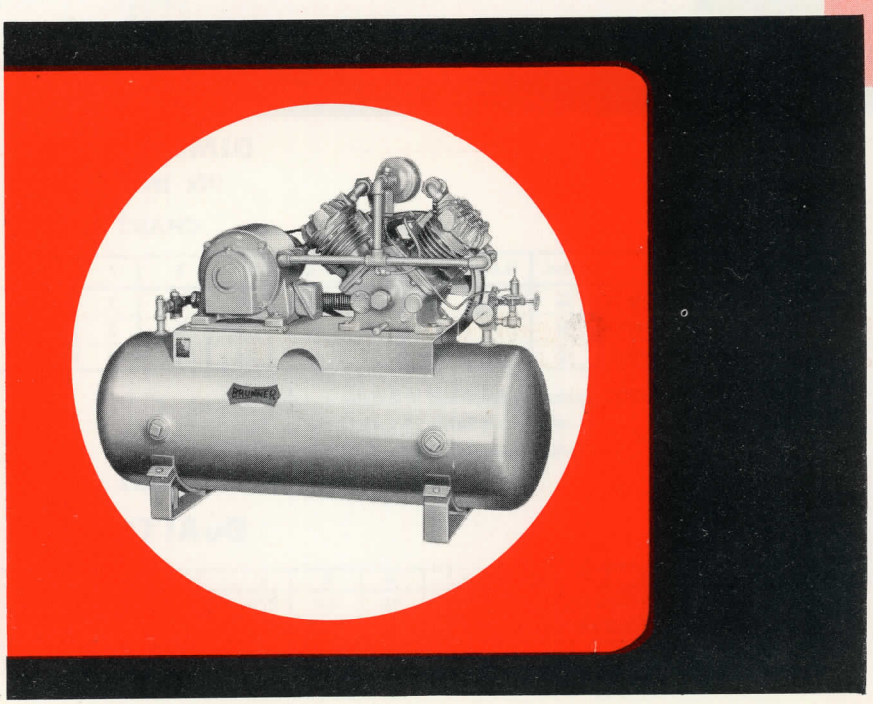
SAFETY VALVE—A.S.M.E.-approved. Gives double protection against tank failure.

CHECK VALVE—Designed to positively seal air in receiver until required for use.

TANK DRAIN—Location at bottom of tank permits complete draining of condensed water, thus insuring minimum of corrosion.

NOISE LEVEL—All Brunner compressors are designed for operation with a minimum of noise.





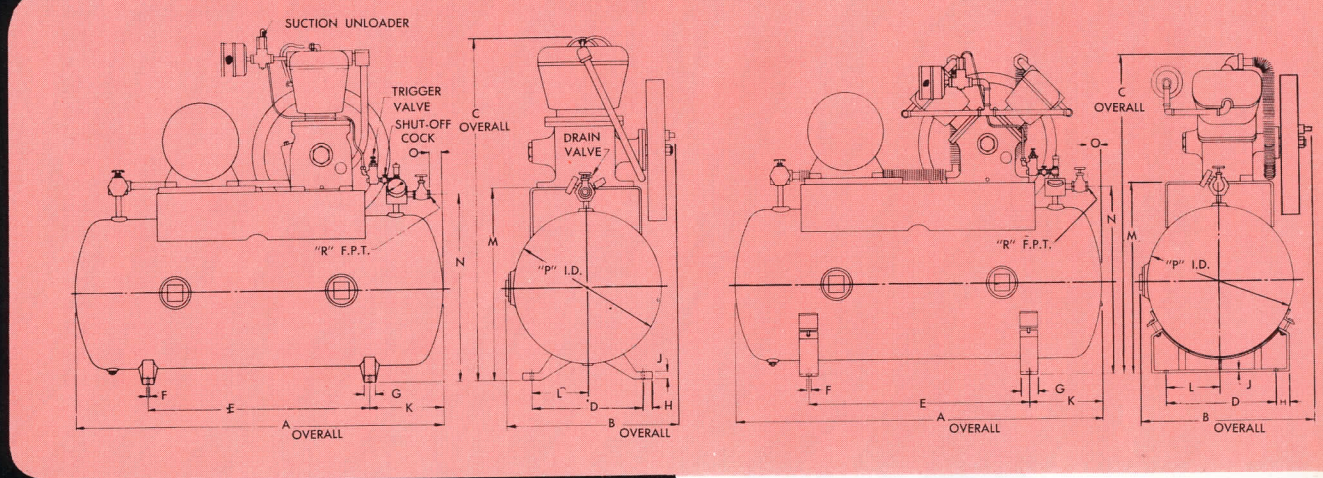
Representative Photos

Continuous Operation
Horizontal Tank-Mounted

AIR COMPRESSOR OUTFITS

SPECIFICATIONS

Model No.	Comp. No.	No. Cyl.	Bore and Stroke	Speed—RPM		80 Lbs. Per Square Inch		100 Lbs. Per Square Inch		H.P.	No. of Belts	Tank Size Gals.	Ship. Weight Lbs.	Boxed Export Cu. Ft.
				80 Lbs. Per Sq. In.	100 Lbs. Per Sq. In.	Cu. Ft. Displ.	Free Air	Cu. Ft. Displ.	Free Air					
2AL2	A	2	1½x1⅜	430	400	1.21	.87	1.13	.72	¼	1	20	185	8
5BL3	B	2	1 13/16x1⅜	720	675	2.96	2.16	2.78	1.88	½	1	32	235	9
7DL3	D	2	2½x1¾	470	450	4.67	3.1	4.47	2.79	¾	2	32	335	27
10DL6	D	2	2½x1¾	620	580	6.15	4.2	5.76	3.66	1	2	60	455	39
15EL6	E	2	2½x3	530	500	9.02	6.5	8.5	6.02	1½	2	60	510	41
20FL6	F	2	3¼x2¼	645	545	13.9	9.36	11.7	8.27	2	2	60	530	41
30GL8	G	4	3¼x2¼	485	440	20.9	15.2	18.9	13.4	3	3	80	548	48
50GL8	G	4	3¼x2¼	750	670	33.7	20.1	30.1	19.1	5	4	80	573	48
75JL8	J	4	4¼x3	530	510	52.2	38.1	50.2	34.2	7½	5	80	1065	52
75JL12	J	4	4¼x3	530	510	52.2	38.1	50.2	34.2	7½	5	120	1365	60
100JL8	J	4	4¼x3	685	650	67.5	47.4	64.0	41.0	10	5	80	1155	52
100JL12	J	4	4¼x3	685	650	67.5	47.4	64.0	41.0	10	5	120	1455	60
150KL12	K	4	4¼x5	600	555	98.5	72.5	91.0	64.0	15	5	120	2100	99



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DIMENSIONS
(IN INCHES)

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
2AL2	34¾	16	28¼	10¾	18	13/32	1¾	⅞	⅝	8¼	5⅜	17	18½	¼	14	⅜
5BL3	44	16	28⅞	10¾	24	13/32	1¾	⅞	⅝	10	5⅜	17⅝	18½	½	14½	⅜
7DL3	44	19⅛	33½	10¾	24	13/32	1¾	⅞	⅝	10	5⅜	17⅜	18⅝	¾	14½	½
10DL6	48	22½	40⅞	18	26	9/16	2	⅞	¾	11	9	24¾	25½	½	20	½
15EL6	48	23¼	42½	18	26	9/16	2	⅞	¾	11	9	24⅜	25¾	½	20	½
20FL6	48	23¼	42½	18	26	9/16	2	⅞	¾	11	9	24⅝	25¾	½	20	½
30GL8	60	23¾	42	18	36	9/16	3	1¼	¼	12	9	23¾	24⅞	4	20	½
50GL8	60	23¾	42	18	36	9/16	3	1¼	¼	12	9	23¾	24⅞	4	20	½
75JL8	60	31⅛	52	18	36	9/16	3	1¼	¼	12	9	23¾	26⅛	3½	20	¾
75JL12	64	31⅛	54	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	28¾	2⅛	24	¾
100JL8	60	31⅛	52	18	36	9/16	3	1¼	¼	12	9	23¾	26⅛	3½	20	¾
100JL12	64	31⅛	54	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	29⅛	1⅞	24	¾
150KL12	64	32¼	57¼	20⅝	43	9/16	3	1 9/16	¼	10½	10 5/16	28½	30⅜	2⅜	24	¾

Form No. 690-12 6-55 (A)
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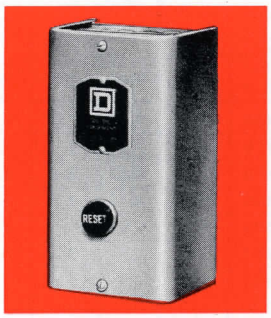
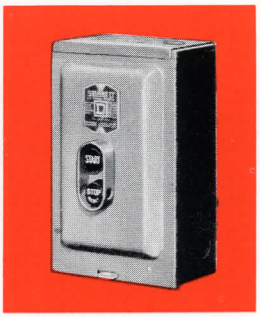
BRUNNER
SINCE 1906

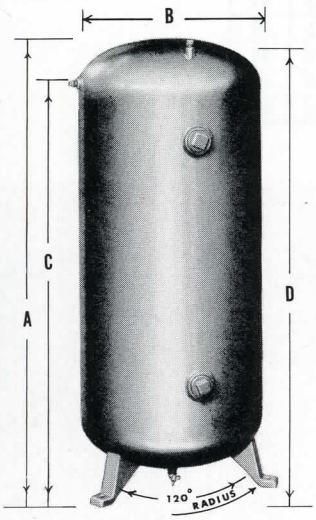
ACCESSORIES

MOTOR STARTING SWITCHES

The use of motor protection is recommended for all air compressor installations. Motor protection is built in on all single phase, 60 cycle, 108/115 or 208/230 volt, ¼ HP thru 2 HP motors used with Brunner Air Compressors. All other motors require manual or magnetic starters to achieve this motor protection. Sustained overloads, overheating, single-phasing or undervoltage will cause motors to burn out. These causes are due to outside influences, such as storms, and cannot be guarded against in the compressor design. The starting switches supplied with Brunner Air Compressors are of nationally known manufacture and afford complete protection.

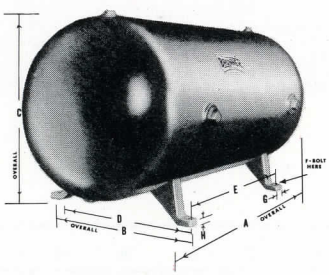






AIR TANKS

Air receivers, both horizontal and vertical are available for use with power plants for remote installation of the storage tank. This type of remote installation is ideal where crowded conditions dictate the use of a minimum amount of floor space. Vertical tanks are available in 32, 60, 80, 120, 200, 400 and 650 gallon capacities. Horizontal tanks are available in sizes 32, 60, 80 and 120 gallon capacities. All tanks, 32 thru 80 gallon capacity, are designed for a maximum working pressure of 200 psi. The 120 gallon and larger tanks are designed for a maximum working pressure of 135 psi, except for the 120 gallon horizontal tank which is suitable for 200 psi. The above tanks are offered bare or with legs and fittings. The bare 32, 60 and 80 gallon vertical and horizontal tanks and the 120 gallon horizontal tank are supplied with legs. The 120 gallon and larger vertical tanks are equipped with mounting skirts welded to the tanks. The tanks offered with legs and fittings include safety valve, drain valve and air pressure gauge in addition to the legs as outlined above. All receiver tanks used by Brunner are of ASME (National Board) construction. Special receivers to meet special local code requirements are also available as extras.



HORIZONTAL TANK DIMENSIONS

(In Inches)

Tank Size	A	B	C	D	E	F	G	H
32	44	12½	18½	10¾	24	13/32	1¾	⅝
60	48	19¾	25½	18	26	9/16	2	¾
80	60	19¾	25½	18	36	9/16	2	¾
120	64	22¾	29	20⅝	43	9/16	3	¼

VERTICAL TANK DIMENSIONS

(In Inches)

Tank Size (Gals.)	A	B	Radius	C	D
32	51⅞	14½	8	43⅛	49⅝
60	55⅝	20	11⅛	46⅜	52⅝
80	48½	20	11⅛	39*	45½
120	68	24	10½	26*	68
200	80	30	13½	29*	80
400	88	36	16½	31*	88
650	108	42	19½	24*	108

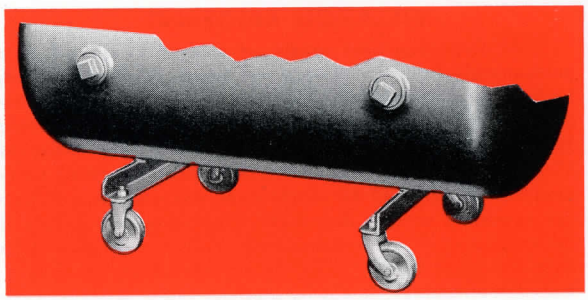
*Air inlet on opposite side from that depicted.

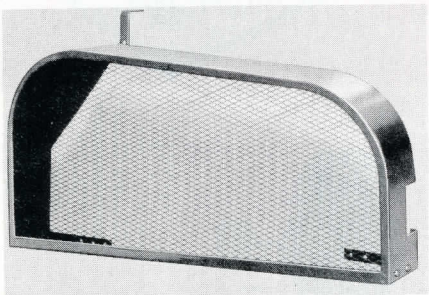
NOTE: 32, 60 and 80 gal. tanks have three bolt holes on 120° centers; 120 to 650 gal. tanks have four bolt holes on 90° centers.

ACCESSORIES

PORTABLE MOUNTING

Many applications require air compressors to be of the type that can be moved easily. To accomplish this portability, castors are available for mounting on Brunner Air Compressors ¼ thru 5 HP. These castors are ball bearing type, with thick rubber wheels. They are available in two sizes — 4" and 5" diameter.



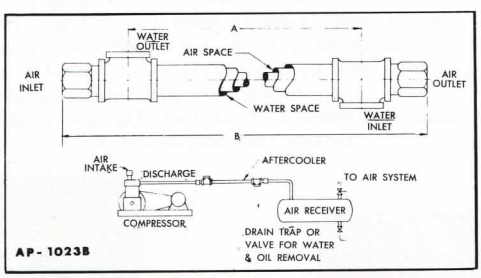


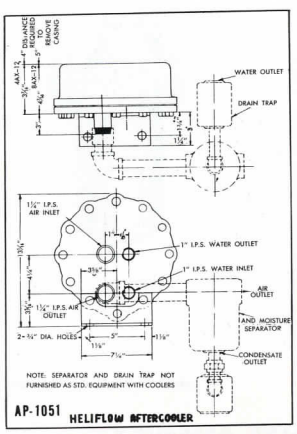
BELTGUARDS

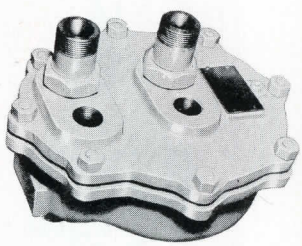
Beltguards built of heavy steel mesh, designed for non-interference with the free flow of cooling air, are available for use with all Brunner Air Compressors. These beltguards completely enclose all the moving parts.

WATERCOOLED COOLERS

Where dry air is required, a water-cooled aftercooler is a must. The use of these coolers eliminates an extra high percentage of moisture from the compressed air, increases the efficiency of the machine, and increases air delivery. These coolers are designed to give maximum results in the most inexpensive manner. Counter-flow water-cooled coolers are used in place of air-cooled coolers on models 1 thru 5 HP. Heliflow aftercoolers are available for use with Brunner air compressors from 7½ thru 20 HP.





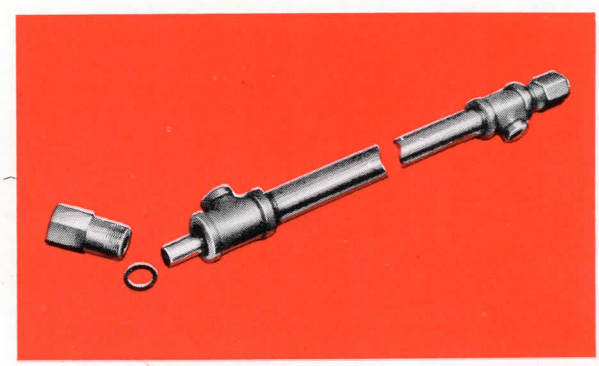


COUNTERFLOW AFTERCOOLER

Model Number	Size Openings I.P.S.		A Inches	B Inches	Compressor Nominal HP	Cu. Ft. of Free Air Handled
	Air	Water				
WF-150	½"	⅜"	26¾	32¾	1 and 1½	6-CFM
WF-300	½"	⅜"	32¾	38¾	2 and 3	12-CFM
WF-500	¾"	½"	38¾	45¼	5	20-CFM

Aftercoolers are suitable for air pressures from 50 Psi to 200 Psi maximum.

Cooling water required approximately one gallon per 100 cubic feet of free air, to maintain approximately a 20° rise in water temperature.



BRUNNER
SINCE 1906

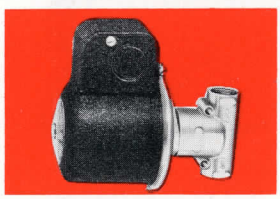
ACCESSORIES

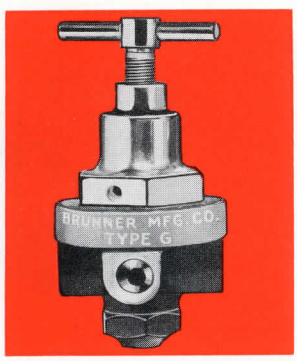
VIBRATION ABSORBERS

Vibration absorbers consist of a layer of special cork permanently bonded between two layers of deep-grooved, high grade, oil resistant, neoprene rubber. This combination provides better results than would be obtainable from either material alone. An assembly consisting of 3″ × 3″ × 1″ absorbers is available for all vertical tank-mounted outfits, and all single-stage start-stop or continuous operating models thru 2 HP. No assembly is required for mounting absorbers on power plant models, two-stage start-stop models, and 3 HP and larger single-stage start-stop or continuous operating models. These absorbers are 4″ × 3″ × 1″.

WATER REGULATING VALVE

Water regulating valves are available for use with the water-cooled coolers. They are electrically operated solenoid valves. They allow for automatic control of the flow of water. When the compressor stops running there is no longer need for water to flow thru the cooler and the valve closes shutting off water flow. Valves are available for use with all types of electric current.





DRAIN TRAP

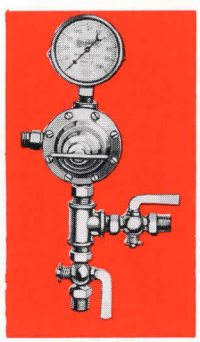
Inverted bucket-type drain traps are also available for use with the water-cooled coolers. These traps are completely automatic and are located in the bottom of the tank. No additional controls are required to operate this trap.

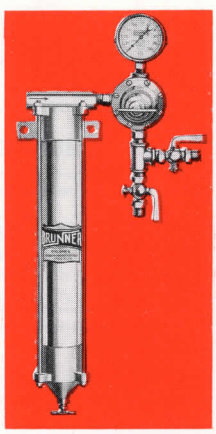
TYPE "G" REDUCING VALVE

This reducing valve is of all metal construction. The valve will reduce an initial tank pressure up to 200 lbs. to a constant pressure ranging from 5 to 115 lbs. They are suggested for paint spraying work and where pneumatic tools of all types are used. This valve provides an even flow of air at a constant pressure, thus allowing for maximum performance of the tool. The use of the valve also serves to conserve the compressed air.

REDUCING VALVE ASSEMBLY

This reducing valve assembly consists of the type "G" reducing valve, an air pressure gauge, and two shut-off valves. The valve reduces air pressure, and allows it to flow at a constant pressure; the air pressure gauge indicates the pressure of the air after it has been reduced. This assembly should always be used in paint spraying and other installations requiring a steady flow of air at a constant pressure.





AIR CONDITIONER

The air conditioner consists of the reducing valve and an oil-moisture receiver. This conditioner makes possible the supplying of oil and moisture free air for applications where this type air is required. This air conditioner is easily installed, quickly drained, and rapidly disassembled for complete cleaning. It should be installed between the air tank and the tool. The air conditioner is designed for operation with one or two tools.

ENGINEERING DATA

COMPRESSION

In compression one of two things are done: (1) the pressure is increased holding the volume constant, or (2) the volume is decreased, holding the pressure constant. There are matters of temperature differences involved but these differences shall be discussed in a later section.

Let's suppose that a vessel, such as a storage tank, has all of the air withdrawn from it and weighed. Air is then allowed to enter the tank until an equilibrium is reached with the atmosphere. Again the tank is weighed. A difference in the two weights is noted. This difference is the weight of the air the tank holds at those conditions of the atmosphere. If the area of the tank is calculated, then divided into the weight of the air, your answer is weight per area. If the weight is found in pounds and the area in square inches, the answer is in pounds per square inch (psi). Pounds per square inch is the accepted method of indicating pressure in the United States.

Now let's force twice as much air into the tank, and weigh it. The difference between this weight and the weight of the evacuated tank is noted. Then it is divided by the area and again our answer is in psi. This is twice the number of psi as was developed when the tank was at atmospheric pressure in the first experiment. The condition for the first type of compression . . . increasing the pressure holding the volume constant . . . is met because the same tank was used in both cases.

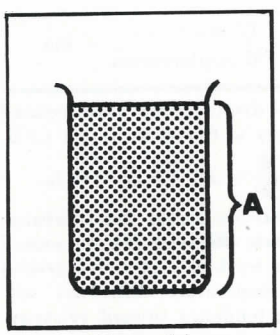


Figure 1A

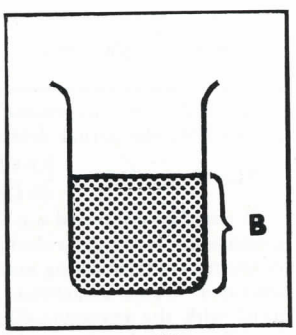


Figure 1B

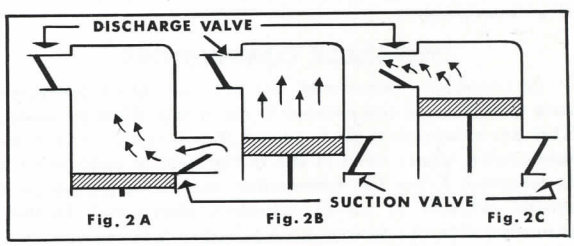
The second type of compression is piston compression. In this case, we will evacuate a tank, then weigh it. Air is then allowed to enter it and the full tank is weighed. The difference is the weight of the air. A cover is placed over the end of the tank (Figure 1A). Now the area of the tank is calculated. Now the cover is forced down halfway to the bottom (Figure 1B). Again the area within the tank is calculated. You will find that the enclosed area in Figure 1A is twice the area of Figure 1B. The same amount (or weight) of air is in the tank in both cases. However, when you compute the pounds per square inch in both cases, you will find the pressure in the first case is one-half as great as the pressure in the second case. Thus the conditions for the second type of compression are met . . . a decrease in volume holding the pressure constant.

HEAT OF COMPRESSION

Work is done during the compression of air, and, as a consequence, temperature is increased. This is known as the heat of compression. When a gas, including air, undergoes an increase in temperature it will expand. Therefore, if a system of constant volume undergoes an increase in temperature, the pressure will increase and, conversely, if a system of constant pressure undergoes an increase of temperature its volume will increase.

You can readily see that this heat of compression will cause a loss of efficiency as the air tends to re-expand. In your air compressor, one of two things will happen due to heat of compression: (1) a lower amount of compressed air will be available; (2) a greater amount of power will be required. A method of removing as much heat of compression as possible is necessary if efficiency is to be maintained.

One method of correcting this inefficiency, would be to increase your power. However, it is more economical to use devices known as coolers to accomplish this effect. A wide variety are supplied with different types of compressors. Additional aid in dissipating this heat of compression can be effected by the thoughtful placing of the machine in as cool a location as possible.



AIR COMPRESSORS

Air Compressors fall under the second type of compression. Piston-type compression is the most popular and most widely used. Air compressors can be either electric or gasoline-engine powered; single cylinder or multi-cylinder machines. When the piston is at the bottom of the down stroke (Figure 2A) the suction valve opens, and air is allowed to enter the cylinder. The piston then starts on the up-stroke and the suction valve closes. As the piston continues its up-stroke air is trapped within the cylinder for both the suction and the discharge valves are closed (Figure 2B). At the top of the up-stroke (Figure 2C) the discharge valve is opened by the increased air pressure within the cylinder, allowing the compressed air to pass either to a storage receiver or out of pipe connections for immediate use. The piston then commences the down-stroke. The discharge valve then closes due to lower pressure. The suction valve opens because the atmospheric pressure is greater than the pressure within the cylinder. The cycle can now be repeated for the piston is back at starting position, (Figure 2A).

ENGINEERING DATA

The air has been compressed and the heat-of-compression temperature increase occurs. For efficiency, some consideration must be made to cool this expanded hot air. This cooling is accomplished by using either air-cooled coolers or water-cooled coolers. By exposing a large surface area of the hot air to the cool atmosphere or cool water, cooling is accomplished. Also, the heads of the compressors and the cylinder walls are finned to increase their surface area to aid cooling. Now the compressor is more efficient without adding extra, unnecessary power to overcome the heat of compression.

SINGLE-STAGE COMPRESSORS

There are two basic types of automotive compressors—single-stage and two-stage, both designed to meet specific requirements. Single stage compressors take air into their cylinders at atmospheric pressure and compress it with a single stroke of the piston directly to the desired pressure. The air is then passed thru a cooler, called an aftercooler, which removes most of the heat of compression. This compressed air is now ready for storage or use. This type compressor is most commonly used for applications where the pressure requirements are not in excess of 150 psi. Above this pressure the efficiency of a single stage compressor falls off rapidly and it is necessary to employ a two-stage compressor.

TWO-STAGE COMPRESSORS

In two-stage compression, air is taken into a low pressure cylinder and compressed to an intermediate pressure. This hot compressed air is passed thru a cooler, called an intercooler, where most of the initial heat of compression is removed. From the intercooler, the air is passed to a second cylinder or set of cylinders where it is further compressed to the desired final pressure. This compressed air is then passed thru another cooler, called an aftercooler, where most of the second stage heat of compression is removed. This type of compressor is used for pressures above 150 psi.

CAPACITY AND VOLUMETRIC EFFICIENCY

The theoretical delivery of any compressor is called its displacement. This is determined by the bore of the cylinder, the stroke of the piston and the number of revolutions per minute (RPM) of the compressor. The displacement of a compressor is calculated by the following formula:

Displacement (cu. in. per min.) = Piston area × stroke × RPM × number of cylinders

For your easy calculation:

Piston area (sq. in.) = piston diameter, squared × 0.7854

Example: A given compressor has a 3-inch bore, a 4-inch stroke, 2 cylinders and runs at 400 RPM.

To compute the displacement, first compute the piston area:

Piston area = $(3'')^2 \times 0.7854 = 7.0686$ sq. in.

Then apply the displacement formula:

7.0686 sq. in. × 4" stroke × 400 RPM × 2 cylinders = 22, 619. 52 cu. in. displacement.

It is customary to express displacement in cubic feet per minute (CFM). Therefore, to convert our answer from cubic inches to cubic feet per minute, the figure should be divided by 1728. The answer is then 13.0 CFM., the displacement of this hypothetical machine. In calculating the displacement of a two-stage machine, you merely calculate the displacement of the low pressure cylinders. The high pressure cylinders merely rehandle the same air as the low pressure cylinders.

No compressor can actually deliver the same amount of compressed air as the displacement would indicate. The reason for this is that the design of the compressor, clearance, increase of temperature and losses thru the valves all contribute to the compressor's loss of efficiency. The only method by which the true delivery of a compressor can be found is to actually measure the amount of air compressed. This "actual delivery" is called a compressor's capacity. Capacity is referred to as cubic feet per minute (CFM) actual.

Here is how the efficiency of a compressor is calculated. This is a ratio between the actual capacity of a compressor and its displacement and is called a compressor's "volumetric efficiency". The volumetric efficiency is readily calculated by following this formula:

$$\text{Volumetric Efficiency} = \frac{\text{CFM actual}}{\text{CFM displacement}} \times 100$$

Example: A compressor's displacement is calculated as 10 CFM; the actual delivery is found to be 8.6 CFM.

Therefore: $\text{V.E.} = \frac{8.6 \text{ CFM}}{10 \text{ CFM}} = .86 \times 100 = 86\%$.

It should be pointed out that the higher the discharge pressure the lower the volumetric efficiency. This is caused by the necessity of doing more work at higher differential pressures. Thus, a greater temperature difference will occur with the corresponding tendency toward re-expansion. Re-expansion is one of the factors limiting a single-stage compressor to 150 psi maximum discharge. At discharge pressures in excess of 150 psi the efficiency of the single-stage compressors will fall off rapidly.

A two-stage compressor is capable of operating efficiently at discharge pressures in excess of 150 psi. This is possible because the discharge pressure of the low pressure stage (the first stage) is below the critical 150 psi of the single stage compressor and the displacement of the compressor is figured only from the first stage. An intercooler is also provided with two-stage compressors to remove the heat of compression from the first stage before the air is compressed to the final high discharge pressure. An aftercooler is also supplied to remove the heat from the second-stage compression. Single-stage compressors are equipped only with an aftercooler, thus there is no intermediate cooling of the air.

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FREE AIR

Usually the air requirements to operate an air tool or machine are given in terms of free air. Free air is defined as the air at atmospheric pressure and 60°F. But it would be impossible to readily test compressors under these ideal conditions. Usually, free air is defined as the actual capacity of the compressor and may be calculated by multiplying the volumetric efficiency by the displacement.

$$\text{Free Air} = \text{V.E.} \times \text{Displacement}$$

Example: A compressor has a displacement of 10 CFM and the volumetric efficiency is 86%.

Therefore: Free Air = .86 × 10 = 8.6 CFM.

VOLUME AND PRESSURE-STORAGE TANKS

A change in the pressure of air at a constant temperature is accompanied by a corresponding change in volume. If a tank of a given volume is used and air in excess of its normal capacity is forced into this tank, the effect is the same as adding additional volume to the tank. If a tank is used in conjunction with a compressor, the compressed air may be stored in the tank for periods when the requirements for air are at their peak. This air storage thus makes possible the use of a smaller compressor.

The volume of air stored in a given tank at a given pressure can be readily calculated by using the following formula:

$$V_1 \times \frac{P_2 + 14.7}{14.7} = V_2 \text{ (the volume of air stored under pressure)}$$

Let's apply this formula. First, multiply the volume of air within the tank at atmospheric pressure (V_1) by the ratio of the absolute pressure at which the air will be stored (P_2) and the absolute atmospheric pressure (P_1). P_1 is a constant and is 14.7. P_2 is the gauge pressure plus 14.7. The result is the volume of air stored in a specified tank under a specified pressure.

Air powered tools, in order to operate, require specific amounts of air at certain pressures. These air requirements are expressed in cubic feet per minute. However, the tool is not operating all of the time. (For the air requirements of some tools, refer to Selection Chart A.) Consider the case of a tool requiring 42 CFM of free air. This tool operates once every five minutes for a duration of one minute. It is possible to use a compressor of sufficient size to produce this capacity of 42 CFM free air and then have the compressor shut down the remaining four minutes. It would also be possible . . . and more economical . . . to use a smaller compressor, delivering approximately 12.2 CFM free air, in conjunction with a 30-gallon storage tank. The smaller compressor would run approximately three and a half minutes of five.

Example: The tool requires 42 CFM free air at 120 psi and operates one minute out of five. A 30 gallon tank is available. (One gallon equals 0.1334 cu. ft.)

Applying the air-volume formula above:

$V_1 = 30 \text{ gal.} \times 0.1334 \text{ cu. ft./gal.} = 4.002 \text{ cu. ft.}$

thus

$$V_2 = 4.002 \times \frac{120 + 14.7}{14.7} = 36.6 \text{ cu. ft.}$$

Thus, the 30 gal. tank has a storage capacity of 36.6 cu. ft. free air at 120 psi gauge pressure. A compressor is needed to give 36.6 CFM free air when operating three out of five minutes — or $\frac{36.6}{3} = 12.2$ CFM free air at 120 psi.

The cubic feet of air within the tank, at the given pressure, is merely the volume of the air if this air were allowed to expand to atmospheric pressure. (See Table 1 for the cubic feet content of air tanks and Table 2 for the number of minutes required to pump up tanks with various compressors.)

TABLE 1

Volume of Air Tanks

The following table gives the number of cu. ft. of free air in various size tanks at various pressures. The reserve or storage volume is shown by the difference between the free air volume indicated and the actual volume of the tank.

Tank Size	No. Gals.	No. Cu. Ft.	CUBIC FEET FREE AIR AT VARIOUS GAUGE PRESSURES						
			15 Psi	30 Psi	60 Psi	90 Psi	120 Psi	150 Psi	175 Psi
HORIZONTAL TANKS									
14" x 34½"	20	2.67	5.35	8.05	13.40	18.70	24.00	29.50	34.00
14½" x 44"	32	4.60	9.20	13.80	23.00	32.20	41.40	50.60	58.20
20" x 48"	60	8.00	16.00	24.00	40.00	56.00	72.00	88.00	102.0
20" x 60"	80	10.6	21.20	31.80	53.00	79.20	95.40	116.6	134.0
24" x 64"	120	16.0	32.00	48.00	80.00	112.0	144.0	176.0	203.0
VERTICAL TANKS									
14½" x 44"	32	4.60	9.20	13.80	23.00	32.20	41.40	50.60	58.20
24" x 35"	60	8.00	16.00	24.00	40.00	56.00	72.00	88.00	102.0
24" x 45"	80	10.6	21.20	31.80	53.00	74.20	95.40	116.6	134.0
24" x 72"	120	16.0	32.10	48.00	80.00	112.0	144.0	176.0	203.0
30" x 84"	200	26.6	53.73	80.86	135.1	189.4	243.7	297.9	343.1
36" x 96"	400	53.2	107.5	161.7	270.3	378.8	487.3	595.8	686.3
42" x 120"	650	79.8	161.2	242.6	405.4	568.2	731.0	893.8	1029.0

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TABLE 2

Tank Pump-Up Time Required for Various Compressors

SINGLE-STAGE COMPRESSOR OUTFITS					TWO-STAGE COMPRESSOR OUTFITS				
Model or Model No.		Tank Size (Gals.)	Time from 0-150 Lbs. (Minutes)	Time from 125-150 Lbs. (Minutes)	Model or Model No.		Tank Size (Gals.)	Time from 0-175 Lbs. (Minutes)	Time from 150-175 Lbs. (Minutes)
2AH2		20	31.00	6.75	15QH6	15QV6	60	15.75	2.5
3AH2		20	28.50	6.10	15QH8	15QV8	80	21.25	3.25
5BH3		32	23.5	5.00	20QH6	20QV6	60	11.00	1.83
7CH3		32	14.75	3.75	20QH8	20QV8	80	16.50	2.75
10DH3		32	9.50	1.83	30RH8	30RV8	80	10.00	1.75
10DH6	10DV6	60	19.00	3.25	30RH12		120	13.4	2.15
15EH6	15EV6	60	10.75	2.25	50RH8		80	6.50	1.09
15EH8	15EV8	80	14.75	2.75	50RH12		120	9.75	1.64
20FH6	20FV6	60	9.50	1.50	75SH8		80	4.2	.77
20FH8	20FV8	80	12.00	1.83	75SH12		120	5.57	.76
30GH8*		80	5.22	.....	100SH8		80	3.7	.73
50GH8*		80	2.25	.....	100SH12		120	4.8	.63
					150TH12		120	2.75	.40

*Time to 100 Psi maximum working pressure.

TYPES OF TANKS

Horizontal tanks are the most common type in use today. The size of the tank is based on the amount of air an air compressor is required to deliver. Vertical tank-mounted air compressors are also available. This type of tank is supplied on installations where floor space is limited and is particularly adaptable for service station use. It is also possible to have a base-mounted outfit where the compressor is not mounted on a tank. The tank may be remotely located (such as suspended from the ceiling). These base-mounted outfits are also used where requirements are for steady quantities of air, thus, precluding the use of a storage tank.

TYPE OF OPERATION AND CONTROL

Obviously, some method of control must be provided to stop the compressor from compressing air when its requirements are met. For example: when a tank has been filled with air to the desired pressure it is not necessary to force more air into the tank. Also it is necessary that the compressor start to operate when the pressure in the tank falls below a certain level. Four control methods are available: (1) Manual (2) Intermittent (3) Continuous (4) Dual. The manual control is not used for it would require a man to constantly watch the tank pressure gauge. The other types enable compressors to operate automatically. For more detailed information on controls, see "Control Section" in this book.

INTERMITTENT OPERATION

In intermittent (or stop-start) operation, the compressor stops when the pressure in the storage tank reaches the predetermined maximum pressure (called the cut-out pressure) and starts when the pressure in the tank falls to a predetermined minimum pressure (called the cut-in pressure). Basically, when the cut-off pressure of the tank is reached the pressure opens contacts in a pressure switch, which breaks the electrical circuit operating the driving motor, stopping it. The pressure then falls to the cut-in point. The pressure is not sufficient to hold open the contacts and they close. The circuit is complete and the compressor can again start to operate.

CONTINUOUS OPERATION

In continuous operation, the compressor continues to run without pumping air after the cut-out pressure has been reached. This is accomplished thru an outlet valve or unloader which opens and allows the air to escape during compression. When the pressure in the tank falls below the cut-in point, the unloader closes and the compressor commences normal pumping. This type of control is most widely used where the requirements for air are constant for a long period of time, or where the required cut-out pressure is relatively low.

DUAL OPERATION

Dual operation is a combination of intermittent and continuous controls in conjunction with a method of changing from one control to another. This type control is used for installations where the requirements for air change; at one time requiring a constant supply of air over a long period (requiring continuous operation) another time requiring an infrequent supply of air (calling for intermittent operation). The choice of control depends entirely upon the particular requirements of a specific installation and must be chosen accordingly.

PRESSURE DROP

Between the period of compression and the actual use of the air, the pressure may fall due to a variety of contributing causes. As air passes through the pipe the pressure will fall due to friction between the pipe and the passing air. Therefore, the smaller the diameter and the longer the pipe, the greater will be the pressure drop.

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Adding to the number of turns, valves and fittings in the pipe also lowers the pressure.

All these factors should be considered when laying out an air compressor installation. Recommended pipe sizes for various lengths of pipe lines and flow rates are given in Table 5. When calculating the requirements of pipe lines, each pipe fitting may be considered approximately equal in pressure loss to five feet of pipe. In many installations, it is necessary to draw air from the outside of the building into the suction line of the compressor. The size of this pipe should never be smaller than the tapped opening in the compressor head. It is also recommended that the pipe size be increased to the next size for every twenty feet of suction line piping.

CHOOSING THE AIR COMPRESSOR

When a compression problem arises, many factors are necessarily involved in the choice of an air compressor. The type of air compressor chosen may be decided by the pressures required to do the work. Compressor problems requiring less than 150 psi indicate the use of a single-stage compressor. If a pressure greater than 150 psi is required a two-stage compressor is indicated. The use of a tank-mounted air compressor can often create substantial savings in the purchase and operation of the air compressor.

SELECTION CHART A

Actual Air Volume Required to Operate Various Air-Operated Devices

Type of Device	Air Pressure Range (Lbs.)	Average Free Air Used (CFM)	No. of Devices Used	Total Average Free Air Used (CFM)
HAMMERS				
Air Hammer*	70—100	16.5		
Fender Hammer*	70—100	8.75		
LIFTS				
Hoist (One Ton)	70—100	1.0		
Hydraulic Lift†	145—175	5.25		
Pneumatic Garage Door	120—150	2.0		
Radiator Tester	70—100	1.0		
Spark Plug Cleaner	70—100	5.0		
Spark Plug Tester	70—100	0.5		
SPRAY GUNS				
Engine Cleaner*	70—100	5.0		
Paint Spray Gun (Production)*	70—100	8.5		
Paint Spray Gun (Touch-up)*	70—100	2.25		
Paint Spray Gun (Undercoating)	70—100	19.0		
Spring Oiler	70—100	3.75		
Transmission and Differential Flusher	70—100	3.0		
TIRE TOOLS				
Rim Stripper	120—150	6.0		
Tire Changer	120—150	1.0		
Tire Inflation Line	120—150	1.5		
Tire Spreader	120—150	1.0		
Vacuum Cleaner*	120—150	6.5		
MISCELLANEOUS EQUIPMENT				
Air Filter Cleaner*	70—100	3.0		
Body Polisher*	70—100	2.0		
Body Sander*	70—100	5.0		
Brake Tester	70—100	3.5		
Carbon Remover*	70—100	3.0		
Car Rocker*	120—150	5.75		
Car Washer*	70—100	8.5		
Dusting (Blow) Gun	70—100	2.5		
Grease Gun (High Pressure)*	120—150	3.0		

*These devices are considered to operate continuously under normal operating conditions. All other devices listed are considered to operate intermittently under normal conditions.

†This lift is for 8000 lbs. capacity. Add 0.65 CFM for each 1000 lbs. capacity. Do not recommend a compressor of less than 1½ H.P. if the pneumatic equipment includes a lift of 8000 lbs. capacity.

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SELECTION CHART B

Intermittent Operation for Average Service Station or Garage Use

Compressor (Psi) Cut-in	Cut-out	Total Free Air Required* (CFM)	H.P.	BRUNNER MODELS** Single-Stage	Two-Stage
70	100	Up to 6.6	½	5BH3	
		6.7— 10.5	¾	7CH3	
		10.6— 13.6	1	10DH3, 10DH6	
		13.7— 20.3	1½	15EH6, 15EH8	
		13.7— 22.4	1½		15QH6, 15QH12
		20.4— 26.6	2	20FH6, 20FH8	
		22.5— 30.4	2		20QH6, 20QH8
		26.7— 41.5	3	30GH8	
		30.5— 46.2	3		30RH8, 30RH12
		41.6— 52.5	5	50GH8	
		46.3— 60	5		50RH8, 50RH12
		60.1— 73.0	7½		75SH8, 75SH12
		73.1—100.0	10		100SH8, 100SH12
		100.1—125.0	15		150TH12
120	150	Up to 3.8	½	5BH3	
		3.9— 7.3	¾	7BH3	
		7.4— 10.1	1	10DH3, 10DH6	
		10.2— 15.0	1½	15EH3, 15EH6	
		Up to 20.0	1½		15QH6, 15QH8
		15.1— 20.0	2	20FH6, 20FH8	
		20.1— 25.9	2		20QH6, 20QH8
		20.1— 30.3	3	30GH8	
		26.0— 39.2	3		30RH8, 30RH12
		30.4— 40.1	5	50GH8	
		39.3— 51.9	5		50RH8, 50RH12
		52.0— 67.5	7½		75SH8, 75SH12
		67.6— 92.5	10		100SH8, 100SH12
		92.6—117.0	15		150TH12
145	175	Up to 18.5	1½		15QH6, 15QH8
		18.6— 24.2	2		20QH6, 20QH8
		24.3— 36.4	3		30RH8, 30RH12
		36.5— 51.0	5		50RH8, 50RH12
		51.1— 66.0	7½		75SH8, 75SH12
		66.1— 88.8	10		100SH8, 100SH12
		88.3—112.7	15		150TH12

*These figures are not regarded as the capacity of the compressor in free air output, but instead are the combined free air consumption of all the tools in the establishment as well as tools anticipated for future added equipment. A factor has been introduced to take into account intermittent operation of tools likely to be in use simultaneously.

**Many of the Brunner outfits listed are available mounted on vertical Tanks.

Continuous Operation

Compressor (Psi) Cut-in	Cut-out	Total Free Air Required* (CFM)	H.P.	BRUNNER MODELS** Single-Stage	Two-Stage
70	100	Up to 1.9	½	5BL3	
		2.0— 3.0	¾	7DL3	
		3.1— 3.9	1	10DL6	
		4.0— 5.8	1½	15EL6	
		4.0— 6.4	1½		15QH6, 15QH8
		5.9— 7.6	2	20FL6	
		6.5— 8.7	2		20QV6, 20QV8
		7.7—11.6	3	30GL8	
		8.8—13.2	3		30RH8, 30RH12
		11.7—17.4	5	50GL8	
		13.3—20.0	5		50RH8, 50RH12
		17.5—25.3	7½	75JL12	
		20.1—29.2	7½		75SH8, 75SH12
		25.4—34.5	10	10JL8, 10JL12	
		29.3—40.0	10		100SH8, 100SH12
		34.6—46.9	15	150KL12	
		40.0—50.2	15		150TH12
120	150	Up to 1.1	½	5BL3	
		1.2— 2.1	¾	7DL3	
		2.2— 2.9	1	10DL6	
		3.0— 4.3	1½	15EL6	
		3.0— 5.7	1½		15QH6, 15QH8
		4.4— 5.7	2	20FL6	
		5.8— 7.4	2		20QH6, 20QH8
		5.8— 8.7	3	30GL8	
		7.5—11.2	3		30RH8, 30RH12
		8.8—15.1	5	50GL8	
		11.3—17.3	5		50RH8, 50RH12
		13.2—19.1	7½	75JL12	
		17.4—27.0	7½		75SH8, 75SH12
		19.2—26.1	10	10JL8, 10JL12	
		27.1—37.0	10		100SH8, 100SH12
		26.2—35.5	15	150KL12	
		37.1—47.3	15		150TH12
145	175	Up to 5.3	1½		15QH6, 15QH8
		5.4— 6.9	2		20QH6, 20QH8
		7.0—10.4	3		30RH8, 30RH12
		10.5—17.0	5		50RH8, 50RH12
		17.1—26.4	7½		75SH8, 75SH12
		26.5—35.3	10		100SH8, 100SH12
		35.4—44.8	15		150TH12

*These figures are to be employed when the nature of the device is such that normal operation requires continuous supply of air — no factor for intermittent operation has been used.

**All standard Brunner continuous operating units are single-stage. Two-stage models available as an extra with continuous operating controls.

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SELECTION CHART C

Speed, Displacement and Free Air Delivery of Brunner Single-Stage Air Compressors for non-pressure switch settings

Single-Stage Compressors — 150 Psi Maximum

Motor H.P.	Comp. Model	SPEED, DISPLACEMENT, FREE AIR AT CUT-OFF PRESSURE INDICATED														
		60 Lbs. Per Sq. In.			80 Lbs. Per Sq. In.			100 Lbs. Per Sq. In.			125 Lbs. Per Sq. In.			150 Lbs. Per Sq. In.		
		Comp. RPM	Displ. CFM	Free Air CFM	Comp RPM	Displ. CFM	Free Air CFM	Comp. RPM	Displ. CFM	Free Air CFM	Comp RPM	Displ. CFM	Free Air CFM	Comp. RPM	Displ. CFM	Free Air CFM
¼	A	575	1.61	1.33	520	1.46	1.15	490	1.38	0.97	430	1.21	0.71	430	1.21	0.63
½	B	.....	.....	.....	.....	.....	.....	.....	.....	.....	720	2.96	1.85	720	2.96	1.70
¾	C	.....	.....	.....	.....	.....	.....	.....	.....	.....	675	4.50	2.50	675	4.50	2.37
¾	D	660	6.55	4.70	585	5.81	4.01	520	5.16	3.15	490	4.88	2.76	470	4.67	2.51
1	D	.....	.....	.....	.....	.....	.....	695	6.77	4.91	620	6.16	4.22	580	5.76	3.51
1½	E	595	10.6	7.79	560	9.4	6.62	500	8.52	5.60	465	7.92	6.19	435	7.40	4.50
2	F	.....	.....	.....	740	15.9	10.6	670	14.4	8.82	575	12.4	7.52	545	11.7	6.90
3	G	585	25.2	19.7	485	20.9	15.2	440	18.9	13.2	.....	.....	.....	.....	.....	.....
5	G	.....	.....	.....	750	33.7	22.7	670	30.1	19.1	.....	.....	.....	.....	.....	.....
7½	J	600	59.2	46.4	550	54.3	39.4	530	52.3	35.5	.....	.....	.....	.....	.....	.....
10	J	750	78.0	62.8	685	67.5	47.8	650	64.0	41.4	.....	.....	.....	.....	.....	.....
15	K	.....	.....	.....	600	98.5	72.5	555	91.0	63.5	.....	.....	.....	.....	.....	.....

Space availability is often the deciding factor in deciding between a horizontal, a vertical, or a remote tank. Controls are most important factors to consider also. Outfits that will be used only occasionally will almost always indicate a start-stop control. In cases where the equipment will be running quite continually a constant speed control is required. In many cases the requirements are constant for a period and then fall off for another period. An example of this is a plant operating on a day and night basis where the requirements are at a peak during the day shift and more spasmodic during the night shift. Here a dual operating outfit is indicated. The next factor to be considered is the amount of air required. By listing the various devices to be operated and finding the amount of air required for each device the total air requirement is easily developed.

The next step is to develop the correct size compressor. It is necessary to determine the number of cubic feet of free air required to operate all the devices for which the air compressor will supply air. Referring to Selection Chart A, various air-operated tools are listed, as well as their air requirements and the pressure at which the air will be required for satisfactory operation. It is known that all the tools will not be in operation at the same time. Therefore, the requirements of air listed are the average air requirements based on average usage. (This chart was developed by the Pneumatic Automotive Equipment Association.) Here is how it should be used: (1) List each device to be used, the air pressure required to operate the device, and the amount of compressed air necessary to operate it. (2) If more than one device of a particular type is required, multiply the number of this type to be used by the compressed air requirements. (3) Take a total of all the air requirements and the *highest* pressure listed. This is the amount of air required. Refer to Selection Chart B, simply look up the correct size air compressor and then to the Brunner Compressor listed alongside for ready selection. Note that Selection Chart A indicates whether a device should operate continuously on intermittently; if both types of devices are listed, separate into columns of continuous operation and start-stop operation.

For instance: (All listed devices intermittent operating.)

Device	Air Consumption of Device CFM		No. of Each Device		Total Consumption CFM	Operating Pressure Range
1 Ton Hoist	1.0	×	1	=	1.0	70–100
Brake Tester	3.5	×	1	=	3.5	70–100
Tire Inflator	1.5	×	1	=	1.5	120–150
Ring Stripper	6.0	×	1	=	6.0	120–150
Spark Plug Tester	0.5	×	1	=	0.5	70–100
Spark Plug Cleaner	5.0	×	1	=	5.0	70–100
Pneumatic Door	2.0	×	1	=	2.0	120–150
Dusting Gun	2.5	×	2	=	5.0	70–100
			Total CFM Required	=	24.5 @	120–150 psi

Since these devices are intermittent operating types you should refer to column 2 of Selection Chart B. You will find that 24.5 CFM at 120-150 psi requires a two-stage, 2 HP compressor. Under the column "Brunner Model", the suggested model is either a 20QH6 or 20QH8.

Here is another example: (All listed devices continuous operating.)

Device	Air Consumption of Device CFM		No. of Each Device		Total Consumption CFM	Operating Pressure Range
Engine Cleaner	5.0	×	1	=	5.0	70–100
Carbon Remover	3.0	×	1	=	3.0	70–100
Vacuum Cleaner	6.5	×	1	=	6.5	120–150
Car Washer	8.5	×	1	=	8.5	70–100
			Total CFM required	=	23.0 @	120–150 psi

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Referring to Selection Chart B, under continuous operation, you will find that 23.0 CFM at 120-150 psi requires a 7½ HP outfit. The Brunner Model column indicates a 75SH8 or 75SH12 for continuous operation.

Here's how selection is made when there is a combination of intermittent and continuous operating devices:

INTERMITTENT TOOLS

Device	Air Consumption of Device CFM		No. of Each Device		Total Consumption CFM	Operating Pressure Range
Hydraulic Lift	5.25	×	1	=	5.25	145–175
Grease Gun	3.0	×	1	=	3.0	120–150
Spring Oiler	3.75	×	1	=	3.75	70–100
	Total CFM required			=	12.00 @ 145–175 psi	

SELECTION CHART D

Design Pressure Required to Overcome Indicated Load

Piston Diam. in Inches	FORCE (LBS.)									
	100	250	500	750	1000	1500	2000	2500	3000	4000
	MINIMUM DESIGN PRESSURE (Psi)									
1¾	40	100	.....	.....	.....	.....	.....	.....	.....	.....
1⅞	35	90	180	.....	.....	.....	.....	.....	.....	.....
2	30	80	160	.....	.....	.....	.....	.....	.....	.....
2⅛	25	70	145	.....	.....	.....	.....	.....	.....	.....
2¼	20	60	125	190	.....	.....	.....	.....	.....	.....
2⅜	20	55	115	170	.....	.....	.....	.....	.....	.....
2½	20	50	100	155	.....	.....	.....	.....	.....	.....
2⅝	15	45	90	135	185	.....	.....	.....	.....	.....
2¾	15	40	85	125	170	.....	.....	.....	.....	.....
2⅞	10	35	75	115	155	.....	.....	.....	.....	.....
3	10	30	70	105	140	.....	.....	.....	.....	.....
3⅛	10	30	65	95	130	.....	.....	.....	.....	.....
3¼	.....	25	60	90	120	185	.....	.....	.....	.....
3⅜	.....	25	55	80	110	170	.....	.....	.....	.....
3½	.....	20	50	75	105	155	.....	.....	.....	.....
3⅝	.....	20	45	70	95	145	190	.....	.....	.....
3¾	.....	20	45	65	90	135	185	.....	.....	.....
3⅞	.....	20	40	60	85	125	170	.....	.....	.....
4	.....	15	40	60	80	120	160	.....	.....	.....
4⅛	.....	15	35	55	75	110	150	190	.....	.....
4¼	.....	15	30	50	70	105	140	175	.....	.....
4⅜	.....	15	30	45	65	100	135	170	.....	.....
4½	.....	10	30	45	60	95	125	160	190	.....
4⅝	.....	.....	25	40	55	90	120	150	180	.....
4¾	.....	.....	25	40	55	85	110	145	170	.....
4⅞	.....	.....	25	35	50	80	105	135	165	.....
5	.....	.....	25	35	50	75	100	130	155	.....
5⅛	.....	.....	20	35	45	70	95	120	145	.....
5¼	.....	.....	20	35	45	70	95	115	140	190
5⅜	.....	.....	20	30	45	65	90	110	135	180
5½	.....	.....	20	30	40	65	85	105	130	170
5⅝	.....	.....	15	30	40	60	80	100	120	165
5¾	.....	.....	15	25	35	55	75	95	115	155
5⅞	.....	.....	15	25	35	55	75	95	110	150
6	.....	.....	15	25	35	50	75	90	105	145
6⅛	.....	.....	15	25	35	50	70	85	105	140
6¼	.....	.....	15	25	30	50	65	80	100	130
6⅜	.....	.....	15	20	30	45	60	80	95	125
6½	.....	.....	15	20	30	45	60	75	90	120
6⅝	.....	.....	10	20	25	40	55	70	85	115
6¾	.....	.....	10	20	25	40	55	70	85	115
6⅞	.....	.....	10	15	25	40	55	65	80	110
7	.....	.....	10	15	25	40	50	65	80	105
7⅛	.....	.....	.....	15	20	35	50	60	75	100
7¼	.....	.....	.....	15	20	35	45	60	70	95
7⅜	.....	.....	.....	15	20	35	45	60	70	95
7½	.....	.....	.....	15	20	35	45	55	65	90

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SELECTION CHART E

Volume of Compressed Air in Cubic Feet Required Per Inch of Stroke to Operate Air Cylinder*

Piston Diam. in Inches	DESIGN PRESSURE													
	70	80	90	100	110	120	130	140	150	160	170	180	190	200
	CUBIC FEET FREE AIR*													
1¾	.192	.215	.238	.262	.283	.306	.329	.354	.374	.397	.420	.442	.465	.488
1⅞	.221	.247	.273	.301	.326	.352	.378	.404	.430	.456	.482	.508	.535	.561
2	.251	.281	.310	.341	.370	.399	.429	.459	.488	.508	.548	.577	.607	.637
2⅛	.283	.317	.350	.385	.417	.451	.484	.518	.551	.584	.618	.651	.685	.719
2¼	.318	.355	.393	.432	.468	.506	.543	.581	.618	.656	.693	.731	.768	.807
2⅜	.354	.395	.437	.481	.521	.562	.604	.646	.688	.729	.771	.813	.853	.897
2½	.394	.439	.486	.534	.578	.625	.671	.717	.764	.810	.857	.903	.949	.996
2⅝	.433	.484	.535	.588	.638	.689	.740	.791	.842	.893	.946	1.006	1.045	1.099
2¾	.475	.531	.587	.635	.699	.755	.811	.867	.923	.979	1.035	1.091	1.147	1.204
2⅞	.520	.581	.642	.706	.765	.832	.888	.949	1.010	1.072	1.133	1.194	1.256	1.318
3	.565	.631	.698	.767	.831	.898	.964	1.031	1.098	1.154	1.231	1.298	1.364	1.432
3⅛	.613	.685	.756	.833	.902	.975	1.046	1.119	1.192	1.264	1.336	1.409	1.481	1.555
3¼	.664	.742	.820	.902	.977	1.055	1.134	1.212	1.290	1.369	1.447	1.525	1.604	1.683
3⅜	.715	.800	.884	.972	1.053	1.138	1.222	1.307	1.391	1.475	1.560	1.644	1.729	1.815
3½	.770	.860	.951	1.046	1.130	1.224	1.315	1.405	1.500	1.587	1.678	1.769	1.860	1.952
3⅝	.825	.922	1.010	1.121	1.214	1.312	1.409	1.506	1.604	1.701	1.799	1.896	1.990	2.992
3¾	.884	.988	1.092	1.201	1.301	1.405	1.509	1.614	1.718	1.822	1.927	2.031	2.135	2.241
3⅞	.942	1.055	1.166	1.283	1.389	1.500	1.612	1.723	1.835	1.946	2.057	2.168	2.428	2.393
4	1.004	1.123	1.242	1.366	1.479	1.598	1.716	1.835	1.953	2.072	2.190	2.309	2.480	2.548
4⅛	1.069	1.195	1.321	1.453	1.574	1.700	1.820	1.953	2.079	2.225	2.331	2.457	2.584	2.712
4¼	1.136	1.267	1.403	1.543	1.671	1.805	1.938	2.072	2.206	2.340	2.474	2.608	2.742	2.878
4⅜	1.202	1.343	1.485	1.633	1.769	1.911	2.053	2.198	2.336	2.478	2.620	2.762	2.904	3.048
4½	1.273	1.423	1.573	1.730	1.874	2.024	2.174	2.324	2.475	2.625	2.775	2.926	3.076	3.228
4⅝	1.343	1.502	1.660	1.826	1.978	2.136	2.295	2.453	2.612	2.770	2.929	3.088	3.246	3.407
4¾	1.417	1.584	1.752	1.926	2.086	2.253	2.421	2.587	2.755	2.922	3.090	3.257	3.424	3.594
4⅞	1.492	1.668	1.844	2.028	2.196	2.372	2.549	2.725	2.901	3.077	3.253	3.429	3.605	3.784
5	1.570	1.756	1.941	2.134	2.312	2.497	2.682	2.868	3.053	3.238	3.424	3.609	3.795	3.983
5⅛	1.650	1.844	2.039	2.243	2.429	2.623	2.818	3.013	3.208	3.402	3.597	3.935	3.987	4.184
5¼	1.731	1.936	2.140	2.354	2.549	2.753	2.958	3.162	3.367	3.571	3.776	3.980	4.150	4.392
5⅜	1.814	2.029	2.243	2.466	2.671	2.885	3.100	3.314	3.528	3.742	3.956	4.171	4.385	4.602
5½	1.900	2.124	2.348	2.582	2.797	3.021	3.245	3.469	3.694	3.918	4.142	4.367	4.591	4.818
5⅝	1.986	2.221	2.455	2.700	2.923	3.158	3.393	3.627	3.862	4.096	4.331	4.565	4.800	5.038
5¾	2.076	2.321	2.566	2.823	3.056	3.301	3.546	3.791	4.036	4.282	4.527	4.772	5.017	5.265
5⅞	2.161	2.416	2.671	2.938	3.182	3.437	3.692	3.947	4.202	4.457	4.713	4.968	5.223	5.482
6	2.260	2.527	2.794	3.078	3.328	3.594	3.861	4.128	4.395	4.662	4.929	5.195	5.462	5.733
6⅛	2.356	2.634	2.912	3.202	3.468	3.746	4.025	4.303	4.581	4.859	5.137	5.415	5.693	5.975
6¼	2.453	2.742	3.032	3.334	3.611	3.900	4.190	4.479	4.769	5.059	5.348	5.638	5.927	6.221
6⅜	2.553	2.854	3.156	3.470	3.758	4.060	4.361	4.662	4.964	5.265	5.567	5.868	6.169	6.475
6½	2.653	2.966	3.279	3.606	3.906	4.219	4.532	4.846	5.159	5.472	5.785	6.098	6.412	6.729
6⅝	2.756	3.081	3.406	3.746	4.057	4.382	4.708	5.032	5.358	5.683	6.009	6.334	6.659	6.989
6¾	2.862	3.199	3.537	3.900	4.213	4.551	4.889	5.226	5.564	5.902	6.240	6.578	6.915	7.258
6⅞	2.969	3.319	3.700	4.036	4.371	4.721	5.072	5.422	6.288	6.123	6.473	6.824	7.174	7.530
7	3.077	3.440	3.804	4.183	4.530	4.893	5.257	5.620	5.983	6.346	6.710	7.073	7.436	7.805
7⅛	3.188	3.564	3.940	4.333	4.693	5.044	5.445	5.822	6.198	6.574	6.951	7.327	7.703	8.085
7¼	3.300	3.690	4.080	4.487	4.859	5.249	5.638	6.028	6.418	6.807	7.197	7.587	7.976	8.372
7⅜	3.420	3.824	4.228	4.649	5.035	5.439	5.843	6.247	6.651	7.054	7.458	7.862	8.266	8.675
7½	3.532	3.949	4.376	4.801	5.210	5.617	6.034	6.451	6.868	7.285	7.702	8.119	8.536	8.959

*The air required is for one operation per minute, if more than one operation per minute, multiply by number of strokes required for 1" stroke; for different length strokes multiply the air required above by the length of the stroke.

CONTINUOUS TOOLS

Device	Air Consumption of Device CFM		No. of Each Device		Total Consumption CFM	Operating Pressure Range
Paint Spray Gun	8.5	×	1	=	8.5	70–100
Body Polisher	2.0	×	1	=	2.0	70–100
	Total CFM required			=	10.5 @	70–100 psi

On Selection Chart B under the intermittent section, you will find that a two-stage, 1½ HP Brunner Model 15QH6 or 15QH8 is required for the intermittent-running devices. The continuous operating section of Selection Chart B indicates the use of single-stage, 3 HP, Brunner Model 30GL8. In cases where one compressor is required

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SELECTION CHART F

Speed, Displacement and Free Air Delivery of Brunner Two-Stage Air Compressors for non-pressure switch settings

Two-Stage Compressors — 175 Psi Maximum

Motor H.P.	Comp. Model	SPEED, DISPLACEMENT, FREE AIR AT CUT-OFF PRESSURE INDICATED											
		100 Lbs. Per Sq. In.			125 Lbs. Per Sq. In.			150 Lbs. Per Sq. In.			175 Lbs. Per Sq. In.		
		Comp. RPM	Displ. CFM	Free Air CFM	Comp. RPM	Displ. CFM	Free Air CFM	Comp. RPM	Displ. CFM	Free Air CFM	Comp. RPM	Displ. CFM	Free Air CFM
1½	Q	525	8.8	6.69	500	8.32	6.24	465	7.73	5.69	435	7.25	5.24
2	Q	740	12.3	9.11	700	11.6	8.47	660	10.9	7.84	625	10.4	7.44
3	R	485	17.7	15.0	465	17.0	14.4	440	16.1	13.7	400	14.6	12.2
5	R	.....	.....	.....	700	26.5	21.2	680	24.9	20.8	610	22.2	18.1
7½	S	.....	.....	.....	.....	.....	.....	450	33.2	28.4	450	33.2	28.1
10	S	.....	.....	.....	.....	.....	.....	555	41.0	36.3	555	41.0	34.8
15	T	.....	.....	.....	.....	.....	.....	555	68.2	56.8	555	68.2	56.4

to handle both types of equipment, choose a compressor with the horsepower the sum of the two compressors indicated and operating at the highest pressure range. In this case a 5 HP outfit (4½ HP outfits are not manufactured), two-stage, for 145 to 175 psi. Thus a Brunner Model 50RH8 is required.

CHOOSING AIR COMPRESSORS FOR INDUSTRIAL APPLICATIONS

Air compressors are often used for industrial applications such as the moving of heavy devices thru the use of a piston. These pneumatically operated devices require certain amounts of compressed air, at specific pressures, to operate. You should know the piston diameter, length of stroke of the piston, and the force required to operate the device. With this information it is merely necessary to refer to Selection Chart D to ascertain the pressure at which the air is required and to Selection Chart E for the amount of air needed.

Example: Air pressure is required to open and close a massive door. The door is connected to a piston within a cylinder. The force required to open and close the door is 1000 lbs. The piston moves 9 feet during the operation. The piston diameter is 3⅝". The question is, what size compressor to select to open and close the door 12 times per hour?

Referring to Selection Chart D, under the column headed 1000 lbs. it is noted that a 3⅝" piston requires 95 psi to operate.

Referring to Selection Chart E, it is found that a 3⅝" piston at 95 psi requires 1.07 cu. ft. per 1" stroke. Since a 9" stroke is used, the operation requires $1.07 \times 9 = 9.63$ cu. ft. each time the door opens or closes. A complete operation of opening and closing the door requires 19.26 cu. ft. of free air. The door opens and closes 12 times per hour; thus $12/60 \times 19.26 = 3.85$ cu. ft. per minute.

Referring to Selection Chart B, we find that a 1½ HP single stage, Brunner Model 15EL6, or a two-stage 15QH6 or 15QH8 compressor will be required. Because of the need for fairly constant operation, a two-stage 15QH8 should be selected.

TABLE 3

Flow of Air Through Orifices and Nozzles

The following table gives flow of air into atmosphere through various size round holes at various pressures based on 70°F and 100% co-efficient of flow

Air Pressure Psi	Flow of Air through an Orifice in cu. ft. of Free Air per Minute							Flow of Air through a Nozzle in cu. ft. of Free Air per Minute						
	1/64"	1/32"	1/16"	1/8"	1/4"	3/8"	1/2"	1/64"	1/32"	1/16"	1/8"	1/4"	3/8"	1/2"
30	.156	.632	2.52	10.00	40.00	90.0	161.0	.237	.961	3.83	15.20	60.80	136.8	244.7
40	.190	.772	3.07	12.27	49.09	110.5	196.4	.289	1.17	4.67	18.65	74.62	168.0	298.5
50	.225	.914	3.64	14.50	58.20	130.0	232.0	.342	1.39	5.53	22.04	88.46	197.6	352.6
60	.260	1.05	4.20	16.80	67.00	151.0	268.0	.395	1.60	6.38	25.54	101.8	229.5	407.4
70	.295	1.19	4.76	19.00	76.00	171.0	304.0	.448	1.81	7.24	28.88	115.5	259.9	462.1
80	.330	1.33	5.32	21.20	85.00	191.0	340.0	.502	2.02	8.09	32.22	129.2	290.3	516.8
90	.364	1.47	5.87	23.50	94.00	211.0	376.0	.553	2.23	8.92	35.72	142.9	320.7	571.5
100	.400	1.61	6.45	25.80	103.0	231.0	412.0	.608	2.45	9.80	39.22	156.6	351.1	626.2
110	.430	1.76	7.00	28.0	112.0	251.0	448.0	.654	2.68	10.60	42.56	170.2	381.5	680.9
120	.470	1.90	7.58	30.2	121.0	271.0	484.0	.714	2.89	11.52	45.90	183.9	411.9	735.6
130	.500	2.04	8.13	32.4	130.0	292.0	520.0	.760	3.10	12.36	49.25	197.6	442.3	790.3
140	.540	2.17	8.68	34.5	138.0	313.0	556.0	.821	3.30	13.19	52.44	209.8	472.7	845.0
150	.570	2.33	9.20	36.7	147.0	334.0	592.0	.866	3.54	13.98	55.78	223.4	503.1	899.7

TABLE 4

Recommended Electric Wire Sizes
Wire Size (Rubber Covered) – C. & S. Gauge No.

Motor H.P.	Max. Length of Line(Ft.)	SINGLE PHASE AND DC		2 OR 3 PHASE			
		110V	220V	110V	220V	440V	550V
¼	150	14	14	14	14	14	14
⅓	100	14	14	14	14	14	14
½	70	14	14	14	14	14	14
¾	50	14	14	14	14	14	14
1	50	12	14	14	14	14	14
1½	50	10	14	14	14	14	14
2	70	8	12	12	14	14	14
3	70	6	10	10	14	14	14
5	100	2	6	6	12	14	14
7½	150	00	4	4	8	14	14
10	150	0000	2	2	6	12	12

SELECTING THE PROPER RECEIVER SIZE FOR INDUSTRIAL APPLICATIONS

Often there is a choice between receiver sizes. When a tank is chosen too small for the application the compressor will "short cycle" causing unnecessary wear on the compressor. A large receiver eliminates this "short cycling" and also provides a larger chamber to cool the air.

Extra cubic feet of air can be stored in the receiver. As an added advantage more moisture can be condensed in the tank before it can cause trouble in the lines or apparatus.

The industrial application illustrated previously dictates selection of the larger receiver. From Table 1 it is found that a 60-gallon receiver will hold 88 cubic feet at the 150 psi cut-off pressure and 72 cubic feet at the 120 psi cut-in pressure. Therefore, the amount of air available is 88 minus 72 or 15 cubic feet. This is not enough air to operate the piston for two complete operations (the problem indicated approximately 5 cubic feet to open the door and an additional 5 cubic feet to close the door — a total of 10 cubic feet).

Therefore, the compressor will commence pumping air into the receiver at least every other time the operation is begun. If an 80-gallon tank were to be used, the cubic feet content of the tank at 150 psi is 116.6 and at 120 psi it is 95.4 cubic feet; a differential of 21.2 cubic feet. This amount of stored air is sufficient to operate the door 2 complete operations. Thus, by using the 80-gallon tank "short cycling" is avoided.

AIR FLOW THROUGH AN ORIFICE

Another important use for air compressors is the doing of work by ejecting a blast of air through an orifice or a nozzle. Table 3 gives the amount of air, in cubic feet, which will flow thru a given size orifice or nozzle at a specified

TABLE 5

Pipe Size to Use in Compressed Air Lines

This chart is based on a loss of pressure not to exceed 5 Psi when the input pressure is 100 Psi

VOLUME AIR Cu. ft. per min.	LENGTH OF PIPE LINES IN FEET							
	25	50	75	100	150	200	250	300
1	½	½	½	½	½	½	½	½
2	½	½	½	½	½	½	½	½
3	½	½	½	½	½	½	½	½
5	½	½	½	½	½	½	½	½
10	½	½	½	½	½	½	½	½
15	½	½	½	½	½	½	½	½
20	½	½	½	½	½	½	¾	¾
25	½	½	½	½	¾	¾	¾	¾
30	½	½	½	¾	¾	¾	¾	¾
35	½	½	¾	¾	¾	¾	¾	¾
40	½	¾	¾	¾	¾	¾	¾	1
50	¾	¾	¾	¾	¾	1	1	1
60	¾	¾	¾	¾	1	1	1	1
70	¾	¾	¾	1	1	1	1	1

NOTE: For each pipe fitting add 5 feet to length of straight pipe.

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TABLE 6

Pressure Required in Air Receiver to Avoid Condensation of Water Vapor in Air Delivery Line

(Delivery Pressure 15 Psi)

Temperature of Air Receiver °F	TEMPERATURE OF AIR IN DELIVERY LINE, °F					
	30°	40°	50°	60°	70°	80°
	PRESSURE IN AIR RECEIVER, PSI					
30°	16.5					
40°	30.0	16.0				
50°	49.0	29.0	16.0			
60°	74.5	46.0	28.5	15.5		
70°	110.0	70.0	44.0	27.5	15.5	
80°		100.0	66.0	42.0	26.5	15.5
90°		142.0	94.0	62.0	40.5	26.0
100°			130.0	87.5	58.0	39.0
110°				122.0	81.5	56.5
120°					112.5	77.0
130°					148.5	106.0
140°						139.0

pressure. It is merely necessary to know the pressure at which the air blast is needed and the size of the nozzle. Then refer to Table 3 to develop the amount of air needed.

Example: A jet of compressed air is required to blow a punched piece of metal from a punch press. It is found experimentally that a blast of 70 psi from a nozzle of $\frac{1}{16}$" diameter is required. The pieces are punched out at the rate of 5 per minute. The duration of the air blast is 2 seconds. Referring to Table 3 it is found that air will flow through a $\frac{1}{16}$" nozzle at 70 psi at the rate of 7.24 cubic feet per minute free air. However, the air flows 5 times per minute at two seconds per operation; thus,

$$7.24 \times \frac{5 \times 2}{60} = 1.21 \text{ CFM}$$

Selection Chart B indicates that a ½ HP single-stage Brunner Model 5BH3 will handle this application efficiently.

INSTALLATION AND SERVICE

To obtain optimum results from the choice of an air compressor, the compressor should be installed correctly. Tables 4 and 5 indicate the recommended wire sizes and pipe diameter sizes for different requirements. These same tables are used by the Pneumatic Automotive Equipment Association in their official booklet, "How to Select an Air Compressor".

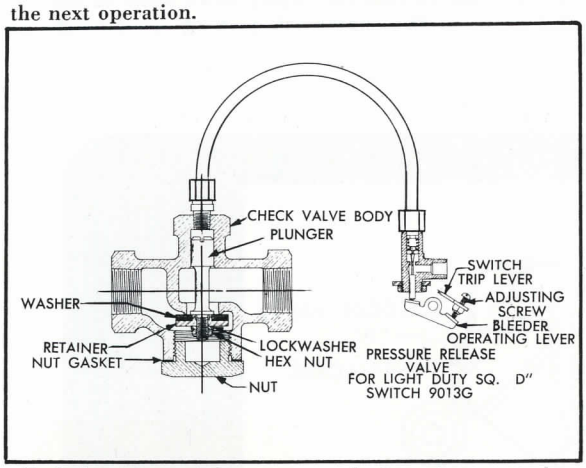
A manual "Your Air Compressor", covering complete information on the installation and operation of the Brunner Air Compressor is available upon request to the Brunner Manufacturing Company, Utica, N.Y.

CONTROLS

INTERMITTENT OPERATING CONTROL (For Electric Motor-Driven Outfits)

The automatic start-stop control is standard equipment and consists of a heavy duty 2-pole air-pressure-operated electric pressure switch, equipped with a two-way release or bleeder valve. When pressure in the air receiver reaches a pre-determined point, the pressure switch trips, opening the electric circuit to the motor, stopping the motor. At the same time, the release valve is opened to the atmosphere by releasing the discharge line pressure from the discharge line between the check valve and the compressor. The check valve is also closed, thus holding back the air pressure built up in the receiver.

When the tank pressure falls to the pre-determined point the pressure switch contacts close completing the circuit to the electric motor which starts the compressor. The release valve closes and the compressor starts under no load since the discharge line has been bled down to atmospheric pressure. As soon as the pressure starts to build up in the discharge line, pressure is exerted on top of the check valve and the valve opens allowing air to pass to the receiver. The check valve will remain open until the next operation.

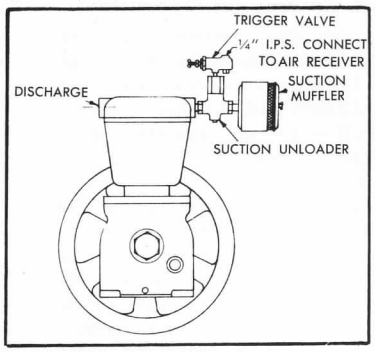


Typical pressure switch arrangement for intermittent controls

CONTINUOUS OPERATING CONTROLS

This control permits the compressor to run continuously once started, unloading and reloading the compressor according to the demand for air. This type control is used where the air demand is uniform. This unloading is accomplished by the use of two component devices, the automatic suction unloader and the trigger valve. The automatic unloader is a spring loaded, air-operated plunger operating within a cylinder, secured to the compressor head.

When pressure in the receiver reaches the cut-off point, the unloader is depressed. On ¼ thru 5 HP models depressing the unloader will close the suction port thus preventing the compressor from taking in air. On the 7½ HP and larger air compressors the suction valve is held off its seat, thus accomplishing the unloading of the compressor.

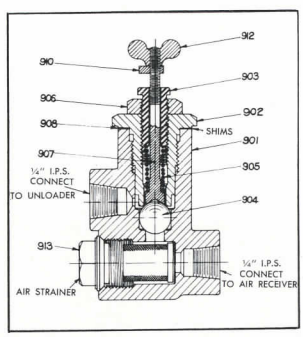


Control diagram for ¼-5 H.P. continuous operating controls

(Dwg. AP-1038)

The admission of air to, and release of air from the suction unloader is controlled by the trigger valve. When the receiver pressure reaches the high limit, the trigger valve opens allowing the high pressure air to reach the suction unloader thus unloading the compressor. When the receiver's pressure reaches the low limit for which the trigger valve is set, the air trapped on top of the suction unloader is released to the atmosphere thru the stem of the trigger valve. This allows the unloader piston to return to the up position in the cylinder and permits the suction air to again enter the compressor.

Trigger valve assembly for continuous operating controls



(Dwg. AP-1039)

The pressure at which the trigger valve operates may be varied. To adjust the pressure at which the unit unloads, loosen the locknut (No. 906), above, and turn the adjusting screw, (No. 903) *in* to raise the pressure, or *out* to lower it. The pressure differential, or difference between unloading and loading pressures, may be increased by unscrewing spring retainers, (No. 902), and removing one or more shims, (No. 908). Adding shims will lessen the differential. Valves are set at the factory to operate with a 10% difference in high and low limits. The compressor can be unloaded by pulling the stem (No. 907) on the trigger valve. The nut, (No. 910), can be used to hold the trigger valve in the unloaded position.

BRUNNER
SINCE 1906

CONTROLS

DUAL CONTROLS

(Automatic Start-Stop & Continuous Operation)

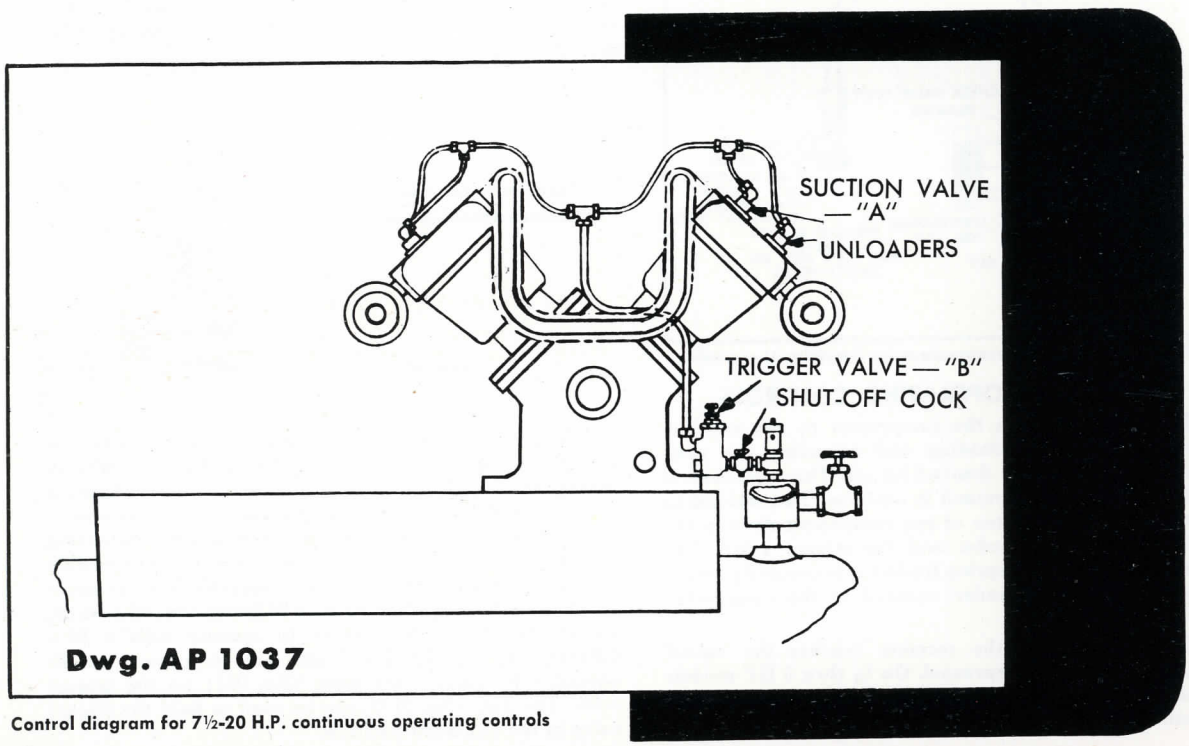
Compressors equipped with dual controls are used where two types of operation are required: (a) where the demand for air occurs at infrequent intervals and (b) where the demand for air changes and becomes constant. To handle this type of operation a single compressor may be equipped with both types of control, start-stop and continuous operating. It is a simple matter to change from one type of control to the other. If the air compressor is operating on start-stop control and it is desired to switch to continuous operation it is merely necessary to open the angle shut-off valve between the trigger valve and the air receiver. Opening this valve permits the receiver air to pass thru the trigger valve to the suction valve unloaders. To revert back to start-stop operation, close the angle shut-off valve. This causes the air pressure switch to operate and the start-stop control is accomplished.

The start and stop operation phase of this control is explained under the section entitled "Intermittent Operating Control". The continuous operation phase of this control is explained in the section entitled "Continuous Operating Control".

INTERMITTENT OPERATING CONTROL FOR GASOLINE ENGINE-DRIVEN OUTFITS

Gasoline engine-driven units are equipped with a single-pole heavy-duty air-operated magnetic grounding switch, equipped with a two-way release or bleeder valve, for discharge line unloading. When the pressure in the air receiver reaches the pre-determined high pressure setting of the switch, the contacts are opened, shorting out the ignition system of the gasoline engine. The two way bleeder valve is opened to atmosphere at the same time, releasing all air between the check valve and compressor discharge valve.

When the air pressure in the receiver drops to the low limit of the switch setting, the contacts close thereby completing the ignition circuit so the engine may be re-started manually. The two-way bleeder valve should be held open until the engine attains its full operating speed when starting. Gasoline engine driven units can also be supplied with continuous operating controls (see description under this heading) which will permit the compressor to load and unload while the engine continues to run. No provision is made to slow the engine down while in the unloaded position. The engine will pick up speed when the load is removed.



Control diagram for 7½-20 H.P. continuous operating controls

BRUNNER

AIR COMPRESSOR EQUIPMENT WARRANTY

The Brunner Manufacturing Company warrants the equipment manufactured by the company to be free from defects in material or workmanship under normal use and service. Brunner's obligation under this warranty is limited to furnishing, f. o. b. point of manufacture, a replacement for any part of such equipment which Brunner's examination proves thus defective within one year from date of original installation or eighteen months from date of shipment by us, whichever may first occur, and which is returned to point of manufacture within such period, transportation charges prepaid.

This warranty is in lieu of all other warranties, expressed or implied.

BRUNNER MANUFACTURING COMPANY

Utica, New York, U. S. A.

BRUNNER

SINCE 1906

Air Compressor Price List

BRUNNER MANUFACTURING COMPANY

UTICA, N.Y., U. S. A.

¼ through 20 H. P. — Effective Sept. 16, 1955 OCT 13 1955

PRICES AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE F.O.B. UTICA, N.Y.

★Single Stage Horizontal Air Compressor Outfits — Electric Motor Drive — ASME Tanks

These units for fast delivery

New Model No.	Old Model No.	H. P.	Tank Size Gals.	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 50/60 Cy. 208/220/440 V.	D.C. 115 or 230 V.	Less Motor
2AH2	H 314	¼	20	180	$225.00	$230.00	$232.00	$265.00	$204.00
3AH2	H 233	⅓	20	180	240.00	244.00	240.00	265.00	204.00
5BH3	H 333	½	32	242	275.00	284.00	275.00	316.00	230.00
7CH3	H 350	¾	32	305	344.00	353.00	344.00	414.00	284.00
10DH3	H 365	1	32	370	407.00	407.00	397.00	613.00	333.00
10DH6	H 665	1	60	504	445.00	445.00	435.00	651.00	371.00
15EH6	H 632	1½	60	590	505.00	505.00	476.00	713.00	391.00
15EH8	H 732	1½	80	630	538.00	538.00	509.00	746.00	424.00
20FH6	H 620	2	60	580	605.00	605.00	555.00	815.00	459.00
20FH8	H 720	2	80	635	638.00	638.00	588.00	848.00	492.00
30GH8	H 7503	3	80	770	825.00	825.00	764.00	1114.00	664.00
50GH8	H 7505	5	80	815	980.00	980.00	826.00	1434.00	707.00

Single Stage "Duplex" Horizontal Air Compressor Outfits — Electric Motor Drive — ASME Tanks

These units for fast delivery

2AH3-D	H 314D	(2) ¼	32	423	$483.00	$493.00	$497.00	$561.00	$441.00
5BH3-D	H 333D	(2) ½	32	423	540.00	558.00	540.00	622.00	450.00
5CH3-D	H 333LD	(2) ½	32	483	585.00	603.00	585.00	667.00	495.00
7CH3-D	H 350LD	(2) ¾	32	483	600.00	618.00	600.00	740.00	495.00
7DH6-D	H 365LD	(2) ¾	60	640	715.00	733.00	715.00	855.00	595.00
10DH6-D	H 365D	(2) 1	60	640	750.00	750.00	730.00	1162.00	602.00
15EH6-D	H 632D	(2) 1½	60	930	975.00	975.00	917.00	1391.00	747.00
20FH6-D	H 620D	(2) 2	60	950	1055.00	1055.00	955.00	1475.00	763.00

★Single Stage Air Compressor Power Plants — Electric Motor Drive

These units for deferred delivery

New Model No.	Old Model No.	H. P.	Outlet Pipe Size	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 50/60 Cy. 208/220/ 440 V.	D.C. 115 or 230 V.	Less Motor
2AP	P 314	¼	⅜″	120	$180.00	$185.00	$187.00	$219.00	$159.00
5BP	P 333	½	⅜″	148	230.00	239.00	230.00	271.00	185.00
7CP	P 350	¾	½″	225	275.00	284.00	275.00	345.00	215.00
10DP	P 365	1	½″	270	345.00	345.00	335.00	551.00	271.00
15EP	P 632	1½	½″	340	410.00	410.00	381.00	618.00	296.00
20FP	P 620	2	¾″	370	490.00	490.00	440.00	700.00	344.00
30GP	P 7503	3	¾″	490	670.00	670.00	609.00	959.00	509.00
50GP	P 7505	5	¾″	490	840.00	840.00	686.00	1294.00	567.00
75JP	P 8107	7½	1¼″	940			1200.00		1034.00
100JP	P 12101	10	1¼″	1040			1325.00		1115.00
150KP	P 122015	15	1¼″	1695			1678.00		1415.00
200KP	P 122020	20	1¼″	1795			2080.00		1660.00

★NOTICE! At extra cost all "H", "V" or "P" Models are available with Unloader for Continuous in addition to Start-Stop Operation. Add "C" to model number when ordering. See page 4 for additional cost.

ALL FOOTNOTES AND REFERENCES APPEAR ON PAGE 4

Motor protection built in on ¼ through 2 H.P. 1 phase motors. No protection 3 phase or D.C.

We recommend the use of Motor Starting Switches having thermal overload protection on all Air Compressor installations. See page 4 this Price Sheet for Prices.

★Single Stage Vertical Air Compressor Outfits — Electric Motor Drive — ASME Tanks

These units for fast delivery

New Model No.	Old Model No.	H. P.	Tank Size Gals.	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 50/60 Cy. 208/220/440 V.	D.C. 115 or 230 V.	Less Motor
10DV6	V 665	1	60	500	$445.00	$445.00	$435.00	$651.00	$371.00
15EV6	V 632	1½	60	605	505.00	505.00	476.00	713.00	391.00
15EV8	V 732	1½	80	620	538.00	538.00	509.00	746.00	424.00
20FV6	V 620	2	60	595	605.00	605.00	555.00	815.00	459.00
20FV8	V 720	2	80	660	638.00	638.00	588.00	848.00	492.00

★Gasoline Driven Single Stage Air Compressor Outfits with ASME Tanks

These units for deferred delivery

New Model No.	Old Model No.	Engine H. P.	Tank Size	Approx. Ship. Wgt. Lbs.	With Gas Engine	Less Gas Engine
16AH2-G	H 314G	1.6	20	180	$280.00	$204.00
16BH3-G	H 333G	1.6	32	242	295.00	230.00
19CH3-G	H 350G	1.9	32	350	340.00	284.00
23DH3-G	H 365G	2.3	32	400	460.00	333.00
23DH6-G	H 665G	2.3	60	530	488.00	361.00
40EH6-G	H 632G	4.0	60	630	520.00	376.00
40EH8-G	H 732G	4.0	80	680	553.00	409.00
40FH6-G	H 620G	4.0	60	600	575.00	459.00
40FH8-G	H 720G	4.0	80	655	608.00	492.00

Simple Compressors, Single Stage

These units for fast delivery

New Model No.	Old Model No.	No. Cyl.	Bore Stroke	Approx. Ship. Wgt. Lbs.	Without Flywheel	With Grooved Flywheel
A	A 140	2	$1\frac{1}{2}$x$1\frac{3}{8}$	58	$67.00	$72.00
B	A 330	2	$1\frac{13}{16}$x$1\frac{3}{8}$	65	73.00	79.00
C	A 500	2	$2\frac{1}{8}$x$1\frac{5}{8}$	92	96.00	102.00
D	A 650	2	$2\frac{1}{2}$x$1\frac{3}{4}$	135	126.00	133.00
E	A 320	2	$2\frac{1}{2}$x3	151	149.00	160.00
F	A 2000	2	$3\frac{1}{4}$x$2\frac{1}{4}$	175	172.00	180.00
G	A 5000	4	$3\frac{1}{4}$x$2\frac{1}{4}$	387	314.00	330.00
J	A 10000	4	$4\frac{1}{4}$x3	775	635.00	715.00
K	A 20000	4	$4\frac{1}{4}$x5	1100	828.00	908.00

★Two Stage Horizontal Air Compressor Outfits — Electric Motor Drive — ASME Tanks

These units for fast delivery

New Model No.	Old Model No.	H. P.	Tank Size Gals.	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 60 Cy. 208/220/ 440 V.	A.C.–3 Ph. 50 Cy. 208/220/ 440 V.	D.C. 115 or 230 V.	Less Motor
15QH6	H 621	1½	60	570	$531.00	$531.00	$502.00	$502.00	$739.00	$417.00
15QH8	H 721	1½	80	605	564.00	564.00	535.00	535.00	772.00	450.00
20QH6	H 6212	2	60	650	585.00	585.00	535.00	535.00	795.00	439.00
20QH8	H 7212	2	80	700	618.00	618.00	568.00	568.00	828.00	472.00
30RH8	H 7413	3	80	720	765.00	765.00	704.00	704.00	1054.00	604.00
30RH12	H 1243	3	120	1040	840.00	840.00	779.00	779.00	1129.00	679.00
50RH8	H 7415	5	80	745	940.00	940.00	786.00	786.00	1449.00	667.00
50RH12	H 1245	5	120	1100	1015.00	1015.00	861.00	861.00	1524.00	742.00
75SH8	H 8717	7½	80	1420			1330.00	1330.00		1164.00
75SH12	H 12717	7½	120	1680			1440.00	1440.00		1274.00
100SH8	H 8710	10	80	1440			1405.00	1405.00		1195.00
100SH12	H 12710	10	120	1700			1515.00	1515.00		1305.00
150TH12	H 12215	15	120	2100			1800.00	1800.00		1537.00

★Two Stage Vertical Air Compressor Outfits — Electric Motor Drive — ASME Tanks

These units for fast delivery

15QV6	V 621	1½	60	585	$531.00	$531.00	$502.00	$502.00	$739.00	$417.00
15QV8	V 721	1½	80	620	564.00	564.00	535.00	535.00	772.00	450.00
20QV6	V 6212	2	60	665	585.00	585.00	535.00	535.00	795.00	439.00
20QV8	V 7212	2	80	660	618.00	618.00	568.00	568.00	828.00	472.00
30RV8	V 7413	3	80	720	765.00	765.00	704.00	704.00	1054.00	604.00

★NOTICE! At extra cost all "H", "V" or "P" Models are available with Unloader for Continuous in addition to Start-Stop Operation. Add "C" to model number when ordering. See page 4 for additional cost.

ALL FOOTNOTES AND REFERENCES APPEAR ON PAGE 4

Motor protection built in on ¼ through 2 H.P. 1 phase motors. No protection 3 phase or D.C.

We recommend the use of Motor Starting Switches having thermal overload protection on all Air Compressor installations. See page 4 this Price Sheet for Prices.

★Two Stage Air Compressor Power Plants — Electric Motor Drive

These units for deferred delivery

New Model No.	Old Model No.	H. P.	Outlet Pipe Size	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 60 Cy. 208/220/ 440 V.	A.C.–3 Ph. 50 Cy. 208/220/ 440 V.	D.C. 115 or 230 V.	Less Motor
15QP	P 621	1½	½″	375	$430.00	$430.00	$401.00	$401.00	$638.00	$316.00
20QP	P 6212	2	½″	405	490.00	490.00	440.00	440.00	700.00	344.00
30RP	P 7413	3	¾″	550	645.00	645.00	584.00	584.00	934.00	484.00
50RP	P 7415	5	¾″	625	795.00	795.00	641.00	641.00	1249.00	522.00
75SP	P 12717	7½	1¼″	1200			1350.00	1350.00		1184.00
100SP	P 12710	10	1¼″	1300			1420.00	1420.00		1210.00
150TP	P 12215	15	1¼″	1700			1650.00	1650.00		1387.00
200TP	P 12220	20	1¼″	1800			1950.00	1950.00		1530.00

★2 Stage Gasoline Driven Outfits—ASME Tanks

These units for deferred delivery

New Model No.	Old Model No.	Engine H. P.	Tank Size	Approx. Ship. Wgt. Lbs.	With Gas Engine	Less Gas Engine
40QH6-G	H 6212G	4.0	60	670	$575.00	$449.00
40QH8-G	H 7212G	4.0	80	720	600.00	474.00

"DU-AL" Tank Gasoline Driven 2 Stage Outfits — ASME Tanks

These units for fast delivery

75RN3-G-A	H 3545GA Elec. Start	7.5	2-17½	675	$850.00	$665.00
80RN3-G-A	H 3545GA Rope Start	8.0	2-17½	625	735.00	665.00
75RN3-G-U	H 3545GU Elec. Start	7.5	2-17½	675	875.00	649.00
80RN3-G-U	H 3545GU Rope Start	8.0	2-17½	625	760.00	649.00

Simple Compressors, Two Stage

These units for fast delivery

New Model No.	Old Model No.	No. Cyl.	Bore Stroke	Approx. Ship. Wgt. Lbs.	Without Flywheel	With Grooved Flywheel
Q	A 212	2	$3\frac{1}{2}$x$1\frac{13}{16}$x3	165	$165.00	$176.00
R	A 414	2	$4\frac{1}{2}$x$2\frac{1}{2}$x4	235	302.00	330.00
S	A 17301	4	$4\frac{1}{4}$x$4\frac{1}{4}$x3	805	750.00	830.00
T	A 20301	4	$4\frac{1}{4}$x$4\frac{1}{4}$x5	1100	920.00	1000.00

★NOTICE! At extra cost all "H", "V" or "P" Models are available with Unloader for Continuous in addition to Start-Stop Operation. Add "C" to model number when ordering. See page 4 for additional cost.

★★Air Outfits for Continuous Operation — Electric Motor Drive

These units for fast delivery

New Model No.	Old Model No.	H. P.	Tank Size Gals.	Approx. Ship. Wgt. Lbs.	A.C.–1 Ph. 60 Cy. 115/230 V. 104/208 V.	A.C.–1 Ph. 50 Cy. 115/230 V. 104/208 V.	A.C.–3 Ph. 60 Cy. 208/220/ 440 V.	A.C.–3 Ph. 50 Cy. 208/220/ 440 V.	D.C. 115 or 230 V.	Less Motor
2AL2	L 314	¼	20	185	$280.00	$285.00	$287.00	$287.00	$319.00	$259.00
5BL3	L 333	½	32	235	330.00	339.00	330.00	330.00	371.00	285.00
7DL3	L 365	¾	32	335	420.00	429.00	420.00	420.00	490.00	360.00
10DL6	L 665	1	60	455	500.00	500.00	490.00	490.00	706.00	426.00
15EL6	L 632	1½	60	510	540.00	540.00	511.00	511.00	748.00	428.00
20FL6	L 620	2	60	530	635.00	635.00	585.00	585.00	845.00	489.00
30GL8	L 7503	3	80	762	850.00	850.00	789.00	789.00	1139.00	689.00
50GL8	L 7505	5	80	787	1010.00	1010.00	856.00	856.00	1464.00	737.00
75JL8	L 8107	7½	80	1065			1420.00	1420.00		1254.00
75JL12	L 12107	7½	120	1365			1575.00	1575.00		1409.00
100JL8	L 8101	10	80	1155			1525.00	1525.00		1315.00
100JL12	L 12101	10	120	1455			1610.00	1610.00		1400.00
150KL12	L 122015	15	120	2100			1925.00	1925.00		1662.00

★★NOTICE! At extra cost all "L" Models are available with Pressure Switch for Start-Stop in addition to Continuous Operation. Add "S" to model number when ordering. See page 4 for additional cost.

ALL FOOTNOTES AND REFERENCES APPEAR ON PAGE 4

Motor protection built in on ¼ through 2 H.P. 1 phase motors. No protection 3 phase or D.C.

We recommend the use of Motor Starting Switches having thermal overload protection on all Air Compressor installations. See page 4 this Price Sheet for Prices.

GENERAL INFORMATION

EXTRA FOR MOTOR STARTING SWITCHES

IMPORTANT — All outfits should be installed with motor protection, and should always be installed by a Licensed Electrician. Note sizes where motor protection is built into the motor. When ordering give complete electrical specifications, including horsepower, operating voltage, amperes, frequencies (cycle), and phase.

H.P.	Man. Starter 1 Phase 108/115 V. 60 Cy.	Man. Starter 1 Phase 208/230 V. 60 Cy.	Man. Starter 3 Pole 2 or 3 Phase 208/220/ 440 V.-60 Cy.	Man. Starter DC 115/230 V.	Mag. Starter 1 Phase 108/115 V. 60 Cy.	Mag. Starter 1 Phase 208/230 V. 60 Cy.	Mag. Starter 3 Pole 2 or 3 Phase 208/230 V. 60 Cy.	Mag. Starter 3 Pole 2 or 3 Phase 440 V. 60 Cy.	Mag. Starter DC 115 V.	Mag. Starter DC 230 V.
¼	*	*	$ 31.00	$ 15.00	$ 32.00	$ 32.00	$ 37.50	$ 46.20		
½	*	*	31.00	15.00	32.00	32.00	37.50	46.20		
¾	*	*	31.00	15.00	32.00	32.00	37.50	46.20		
1	*	*	31.00		32.00	32.00	37.50	46.20	$145.00	$145.00
1½	*	*	31.00		32.00	32.00	37.50	46.20	145.00	145.00
2	*	*	31.00		32.00	32.00	37.50	46.20	145.00	145.00
3		†$15.00	33.50		59.50	32.00	37.50	52.00	145.00	145.00
5					164.00	32.00	37.50	52.00	295.00	175.00
7½							37.50	52.00		
10							96.00	96.00		
15							96.00	96.00		
20							164.00	96.00		

*Motor Protection Built into Motor — No extra charge †Thermal Overload Relay

TANKS ONLY*

Capacity Gallons	Dimensions	Maximum Pressure (P.S.I.)	List Price Bare	List Price Tanks with Legs	List Price with Legs and Fittings††
32	14½" x 44" ASME Vertical or Horizontal	165	$ 84.00	$ 94.00**	$ 126.50**
60	20" x 48" ASME Vertical or Horizontal	200	157.00	170.00**	199.00**
80	24" x 45" ASME Vertical	200	228.50	243.00	271.00
80	20" x 60" ASME Horizontal	200	179.00	202.00**	231.00**
120	24" x 72" ASME Vertical or Horizontal	135†	.....	372.00**	439.00**
200	30" x 84" ASME Vertical	135	.....	519.00	586.00
400	36" x 96" ASME Vertical	135	.....	987.00	1053.00
650	42" x 120" ASME Vertical	135	.....	1703.00	1769.00

†Horizontal Tank—200 P.S.I. Pressure.
*Specify whether vertical or horizontal tank is required.
††Fittings Include: Pressure gauge, drain valve, safety valve.
**Does not include saddle base for horizontal tanks.

BALL-BEARING CASTERS

Air Compressors ¼ thru 5 H.P. may be converted for use as portable units with the addition of ball-bearing casters. List price, unmounted: 4-inch, $36.00 per set; 5-inch, $47.00 per set.

MASSACHUSETTS CODE

For special tanks and fittings to comply with the Massachusetts Code, add to regular list prices: For tank sizes 20, 32, 60 and 80 gallon capacity, $15.00. For 120 gallon tanks, add $23.00. For 12-inch pedestals for horizontal outfits, add $43.50 per set.

CONTROLS

★To equip "H", "V" or "P" models with unloader for dual operation (continuous and start-stop) (Add "C" as suffix to model number when ordering).

¼ thru 5 H.P. . . . . Add $73.00 to List Price
7½ thru 20 H.P. . . . . Add 98.00 to List Price

★★To equip "L" models with pressure switch for dual operation (both start-stop and continuous) (Add "S" as suffix to model number when ordering).

¼ thru 2 H.P. . . . . Add $21.50 to List Price
3 thru 20 H.P. . . . . Add 27.00 to List Price

To convert "L" models for start-stop operation only:

¼ thru 2 H.P. . . . . Deduct $29.00 from List Price
3 thru 5 H.P. . . . . Deduct 26.00 from List Price
7½ thru 20 H.P. . . . . Deduct 40.00 from List Price

To convert "H", "V" or "P" models for continuous operation only:

¼ thru 5 H.P. . . . . Add $62.00 to List Price
7½ thru 20 H.P. . . . . Add 83.50 to List Price

WATERCOOLED AFTERCOOLERS

The following table shows the additional price for supplying various models air compressors with watercooled aftercoolers in place of air cooled aftercoolers. Prices do not include water regulating valve or automatic drain trap.

Model No.	For Use with	Price Less Fittings and Unmounted	Price Mounted	Extra for Water Regulating Valve	Extra for Drain Trap ¾" or 1"
WF-150	1 and 1½ H.P. outfits	$ 24.00	$ 57.00	$15.50	$22.00
WF-300	2 and 3 H.P. outfits	29.00	73.00	17.00	22.00
WF-500	5 H.P. outfits	36.00	91.00	17.00	22.00
4AXF-12	7½ H.P. outfits	165.00	248.00	19.50	22.00
	10 H.P. two stage outfits	165.00	248.00	19.50	22.00
8AXF-12	10 H.P. single stage outfits	165.00	248.00	19.50	22.00
	15 and 20 H.P. outfits	165.00	248.00	19.50	22.00

BELT GUARD

For ¼ thru ¾ H.P. $20.00
For 1 thru 2 H.P. 29.00
For 3 thru 5 H.P. 38.50
For 7½ thru 20 H.P. 48.50

OTHER BRUNNER ACCESSORIES

Air Conditioner $38.50
Reducing Valve Assembly 27.50
Type "G" Reducing Valve 15.25
Vibration Absorber Assy. (3" x 3" x 1") For all "V" Models; single stage "H" and "L" models thru 2 H.P. . 7.00
Vibration Absorber (4" x 3" x 1") For all "P" models; two-stage "H" models; all "H" & "L" models 3 H.P. and above . 3.50

Form 691R-9-16-55(A)
Printed in U.S.A.

All Prices and Specifications Subject to Change Without Notice